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ABSTRACT

The first year's observations of projects funded by the Annenberg/Corporation for Public Broadcasting in its New Pathways to a Degree project are summarized. The project was designed to help colleges use technologies to develop academic degree programs that are accessible to the new majority of learners, those who have jobs, home responsibilities, schedules, and locations that make full-time study on a campus difficult. The following chapters review seven projects that are using combinations of technologies to effectively engage students in varieties of learning activities appropriate to the particular technology: (1) "Baccalaureate Degrees and Student Services Using the New Technologies To Expand Access: Oregon State System of Higher Education" (John Witherspoon); (2) "Electronic Access to Weekend College: College of St. Catherine, St. Paul, Minnesota" (Patricia Kovel-Jarboe); (3) "Community College of Maine: The University of Maine at Augusta" (Ellen D. Wagner); (4) "Community Learning Network: Indiana University-Purdue University, at Indianapolis" (Richard Markwood); (5) "Access, Involvement and Success in Distance Learning: The Extended Learning Institute, Northern Virginia Community College" (Barbara Beno); (6) "Project Breakthrough: West Virginia Higher Education System" (Ralph Meuter); and (7) "Enhanced Access to Learning through Technology: Rochester Institute of Technology" (Art St. George). An introduction and summary of first-year conclusions are included; a chart summarizes project characteristics; and appendixes present survey protocols and the environmental scan instrument. (SLD)

New Pathways to a Degree

Project Evaluation: First Year Report

The Annenberg/CPB Project

Western Cooperative

WICHE

New Pathways to a Degree

Project Evaluation: First Year Report

edited by
Richard A. Markwood and Sally M. Johnstone

Western Cooperative for Educational Communications
The Annenberg/CPB Project
Western Interstate Commission for Higher Education

The Western Cooperative for Educational Telecommunications is a program of the Western Interstate Commission for Higher Education (WICHE). It was established by WICHE in July 1989 to facilitate resource and information sharing in the use of telecommunications and other technologies for education. Funding assistance to the Western Cooperative is provided by U S WEST Communications, WICHE, and member dues.

WICHE is a regional educational compact established by western states to promote and facilitate resource sharing, collaboration, and cooperative planning among those states and their colleges and universities. Member and affiliated states are: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

The Annenberg/CPB Project began in 1981 with funding from the Annenberg School of Communications to the Corporation for Public Broadcasting. The goal of the Project is to make a high quality college education more accessible to the American public. To that end, the Project has supported the development of a collection of television and audio courses that are licensed by colleges and universities as complete courses, and used to supplement classroom teaching. The Project has also supported technology demonstration projects that use computers and information technologies to make education more accessible for all students.

The New Pathways to a Degree program was launched by the Annenberg/CPB Project in 1990. The purpose is to help colleges use technologies to develop academic programs that are accessible to the New Majority of learners -- people with jobs, home responsibilities, and schedules or locations that make full-time study at the campus of their choice difficult or impossible. At the same time, colleges can use these technologies to tap richer, and more diverse academic resources -- remote library collections, distant experts, databases, video material, and powerful software.

This report was submitted by the Western Cooperative to the Annenberg/CPB Project as part of CPB Contract #20091. It was compiled with the assistance of Mollie McGill, Dale Cracraft, and Donna Leabhard on the staff of the Western Cooperative. During the initial phase of the evaluation project, Oliver Sundby served as the coordinator. For further information about this report, contact the Western Cooperative, P.O. Drawer P, Boulder, CO 80301-9752, telephone: 303-541-0231, fax: 303-541-0291.

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The New Pathways to a Degree Project Evaluation First Year Report to the Annenberg/CPB Project

Table of Contents

Appendices

Chapter 1

INTRODUCTION

This report constitutes the first year of observations by a team of evaluators working with each of the seven projects funded by the Annenberg/CPB Project's New Pathways to a Degree. This project was designed to help colleges use technologies to develop academic degree programs that are accessible to the "new majority of learners"--people with jobs, home responsibilities, schedules, and locations that make full-time study on a campus difficult. The rationale and process of the evaluation are discussed in this opening chapter. The majority of this report was written by the evaluation team members and is a summary of their initial observations of each of the New Pathways projects.

THE FUNDED PROJECTS

These seven projects enhance effective access to academic degree programs through new uses and mixes of technology. The details of the projects are discussed in Chapters 2 - 8. The names and very brief descriptions[1] are listed below.

- BACCALAUREATE DEGREES AND STUDENT SERVICES USING THE NEW TECHNOLOGIES TO EXPAND ACCESS, The Oregon State System of Higher Education and Oregon Ed-Net, Oregon
  ... will develop a model for how schools can offer complete baccalaureate degree programs through a statewide educational network.

- ELECTRONIC ACCESS TO WEEKEND COLLEGE, The College of St. Catherine, St. Paul, Minnesota
  ... will serve as a model for how colleges - particularly those with weekend programs - can use technology to remove educational barriers and meet the needs of the adult student.

- COMMUNITY COLLEGE OF MAINE, University of Maine at Augusta, and the Maine Community College System, Maine
  ...will build on its current system of linking all public higher education institutions with off-campus sites such as public schools and off-campus centers to offer a coherent sequence of courses for an associate of arts degree to rural learners in the state.

- COMMUNITY LEARNING NETWORK, Indiana University-Purdue University at Indianapolis, Indiana
  ... developing a model for how urban universities can provide access and community support for minority students.

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[1] The descriptions are abridged from the Annenberg/CPB Project's first newsletter for the New Pathways to a Degree.

- ACCESS, INVOLVEMENT AND SUCCESS IN DISTANCE LEARNING, The Extended Learning Institute, Northern Virginia Community College, Virginia
  ... will use public and cable television, computer conferencing, two-way compressed video, audio conferencing, voice mail and videocassettes to make it possible for students to earn an entire associate degree in general studies or business administration.

- PROJECT BREAKTHROUGH, West Virginia Higher Education System, Morgantown, West Virginia
  ...developing a model for a collaborative statewide coalition that will make undergraduate degree opportunities available to rural adults.

- ENHANCED ACCESS TO LEARNING THROUGH TECHNOLOGY, Rochester Institute of Technology, Rochester, New York.
  ... developing an affordable model for using technology to offer highly accessible upper division courses to give students even more freedom to choose where, when and at what pace they study.

OTHER NEW PATHWAYS TO A DEGREE ACTIVITIES

Annenberg/CPB has committed $1.5 million in support for these seven funded projects, but an additional $330,000 for related activities. While 7 projects received funding, 32 did not. Because all of the proposals were meritorious and taken together represented a unique collection of innovative thinking, Annenberg/CPB decided that this entire community should somehow be included in the New Pathways to a Degree Project activities. It invited both the funded and the non-funded projects to participate in the initial meeting, from which discussions grew the idea to encourage the non-funded projects to become "Associates" of the New Pathways to a Degree Project. As a result, three clearly defined populations of participants with varying degrees of interest and involvement are participating in the project: (1) the funded projects, (2) the Associates (representatives from projects that were not funded), and (3) the evaluation team. These groups and a growing number of other interested members of the higher education community have been involved to a degree in all of the following other activities.

LISTSERV. LISTSERV is a software mechanism used to distribute information to groups of participants (subscribers) to topical computer-based discussions. LISTSERV is a common activity for persons with access to BITnet and the Internet. Annenberg/CPB in previous projects had used LISTSERV as a mechanism for communicating with its project constituents and saw the New Pathways to a Degree project as an opportunity to further utilize LISTSERV to enable discussion which would include all persons associated with the New Pathways to a Degree Project. Michael Strait managed the LISTSERV activities. Three separate lists were established: NP-CORE was most exclusive and was intended to focus on the

business of the project; it included Annenberg/CPB staff, Project Directors, and the Evaluators (a few Associates for one reason or another participated in this List). There were about 60 participants in NP-CORE. NP-FORUM was to be a discussion forum for anyone interested in distance delivery of education, uses of multimedia, and other issues related to the New Pathways to a Degree program. All three groups of participants were invited to participate, but especially the Associates. There were about 140 participants in NP-FORUM. Neither NP-CORE nor NP-FORUM was moderated, i.e. there was no person responsible for screening, filtering or commenting on materials posted to these lists; any member who wished to raise an issue or comment on a previous remark could send mail to the List and it was automatically redistributed to the entire List. Finally, NP-NEWS was the newsletter of the project. The newsletter was published electronically to the NP-NEWS List and the same text was distributed more widely in a print version. Within the LISTSERV community there are several services which advertise List names so that interested parties can subscribe. The NP-NEWS, probably through this subscription process, developed the largest subscription list (375 subscribers) which included several commercial and international clients.

In addition to these three Annenberg/CPB sponsored lists, four moderated lists were created in direct response to requests from New Pathways to a Degree constituents. These were NP-DETA (technology), NP-RESH (research), NP-FCLTY (faculty development), and NP-ASSAY (student assessment). These Lists were small; all were moderated by volunteers; two were moderated by volunteers who received modest stipends to compensate for the work of a rather demanding task. Only NP-FCLTY resulted in a modest amount of activity. While these efforts to make possible a national discussion had modest success, it appears that to really make LISTSERV discussions successful requires more human resources than have been committed to these. Moderators frequently play key roles in face-to-face discussions and are probably essential to generating productive electronic discussions as well. Many of the participants lacked experience in use of LISTSERV so that some training might have improved participation and made this activity more productive. While these general comments are critical of the four moderated lists, the three major Lists must be considered successful endeavors and served an important role in keeping interest high in the New Pathways to a Degree Project. In the fall of '91 there was a break in the function of the LISTS caused by the need to move to a different host computer. The service was restored in the summer of '92. The interruption served to remove any doubt about the usefulness to the participants and the Annenberg/CPB staff of the LISTSERV.

Workshops. In conjunction with the New Pathways to a Degree Project, the Annenberg/CPB staff developed a workshop to bring together and assist higher education professionals in expanding their vision of how New Pathways to a Degree

technologies might be developed and utilized in the outreach missions of their institutions. The initial workshop in Annapolis was developed jointly by Steve Ehrman and Lin Foa from Annenberg/CPB, working together with staff of the College of the Air Tele-Consortium. This workshop has been modified and delivered eight times (one version scheduled for the fall ['92] meeting of EDUCOM). The preferred format is for the Annenberg/CPB workshop to be one day's content of a two-day workshop, for which the staff of the host site prepares and delivers the second day's content. The audience normally includes administration, faculty, and staff. In the most common form, participants assume fictitious roles which enable them to discover solutions to distance learning problems and to understand the value of multiple technologies as learning tools. Annenberg/CPB staff have been directly involved in all but one of the workshops; in that one, the host institution used Annenberg/CPB's materials but conducted the workshop with local staff. All of the workshops received positive reviews from participants. It is likely that this workshop will continue to be used in some form, especially if Annenberg/CPB can find a way for the workshops to be self-supporting.

Publications. Another significant activity arising from the New Pathways to a Degree Project is developing print resources. The first is a publication written by Lin Foa entitled, Pathways to Success: Using Technologies to Reach Distant Learners (1991). This booklet briefly captures many good ideas found by Annenberg/CPB in the process of reviewing proposals, many of which could not be funded. The projects were worthy, and the ideas worth sharing. The proposal writers with only one exception were willing for their ideas to be shared in this way. The book sorts ideas into four broad categories (42 pages): "Recruitment and Orientation," "Program and Course Development and Delivery," "Support Services," and "Faculty Development." The book is also a technologies human-resource book because names and telephone numbers of the proposal authors are given, and in many cases FAX numbers and e-mail addresses, as well. The appendices include 30 additional pages of other useful New Pathways to a Degree Project information. The initial run of the pamphlet was distributed to the general New Pathways mailing list. Because of the resulting demand for additional copies, the pamphlet, now in its second printing, is being made available for the cost of printing and shipping (about $10).

Not a formal part of the New Pathways to a Degree Project but nevertheless related, a second publication, entitled Going the Distance, will soon be made available. Annenberg/CPB is cooperating with PBS in contracting with Toby Levine Communications, Inc., to publish a "how to" and case book based on many successful distance learning projects. This resource book will include a list of degree programs, a representative sampling of programs with their delivery methods, a glossary of distance education terms and definitions, and lists of available pre-packaged audio and video courses. This book will capture some of the experience and wisdom from

the New Pathways to a Degree Project funded projects and Associates, and will make available in a single publication one of the most comprehensive resources on the field.

EVALUATION

The external evaluation of the New Pathways to a Degree Project was contracted to the Western Cooperative for Educational Telecommunications in May of 1991. At the end of the two and a half years of the project we hope to

- Assess the impact of telecommunicated instruction upon students;
- Determine the effect of technology and mixes of technology on

  --student learning,
  --instructional processes,
  --organizational policies, and
  --support structures; and

- Determine the overall impact of the New Pathways project.

Evaluation team. The Western Cooperative has assembled an evaluation team of experienced researchers from within its membership. Each has significant expertise as well as professional interest in post-secondary uses of educational technologies. Each of the evaluators has been assigned to an individual New Pathways program and will continue with that program throughout the evaluation. The evaluators include

- Mr. John Witherspoon, evaluator for the Oregon State System of Higher Education's New Pathways project, is Chairman of the Department of Telecommunications and Film at San Diego State University. He is a specialist in applications of technology in education and has performed evaluations for several national projects in technology. John has also acted as a consultant for development of educational technology systems in several states. He has served as President of the Public Service Satellite Consortium and was the first principal executive for television for the Corporation for Public Broadcasting. He was also founding Chairman of the Board of Directors for National Public Radio.

- Dr. Art St. George, evaluator for the New Pathways project at the Rochester Institute of Technology, is the Executive Network Services Director for Computing, Information, Research and Technology (CIRT), at the University of

New Mexico. He has managed or assisted in the development of distance education programs for over ten years. Art has designed and programmed courses for remote distribution using computer and video technology, and has, as technical director for the Bi-National English and Spanish Telecommunications Network, developed educational technologies for students in Mexico and the United States.

- Dr. Ellen Wagner, evaluator for the New Pathways project at the University of Maine, is currently a visiting scholar with the Western Cooperative and has remained closely involved with research in national and western telecommunications issues involving education. She is on the faculty of the Educational Technology Department at the University of Northern Colorado and has served as Director of that university's Western Institute for Distance Education since 1988. Her research, publications, and teaching have focused on instructional design, analysis, and evaluation of educational technology programs and structuring educational technology programs in rural settings.

- Dr. Barbara Beno, evaluator for the New Pathways Project at Northern Virginia Community College, is the president of Vista Community College in Berkeley, California. She has extensive experience in qualitative and quantitative research methodologies, has directed research activities for a community college and has consulted in evaluation with government agencies. She is particularly experienced in bringing technologies to education in the community college setting.

- Dr. Richard Markwood, evaluator for the New Pathways project at Indiana University-Purdue University at Indianapolis, has been the senior project director for NorthWestNet, a regional multi-state computing consortium sponsored by WICHE. He has written and presented on applications of instructional technologies in education. He has consulted with state governmental agencies and educational systems on development and analysis of surveys and on implementation of evaluation processes.

- Dr. Patricia Kovel-Jarboe, evaluator for the New Pathways Project at College of St. Catherine in St. Paul, Minnesota, is Coordinator for Quality Improvement in the Division of Academic Affairs at the University of Minnesota. Pat is currently involved in projects demonstrating potential of educational technology in outreach programs and in preparation of faculty for use of emerging technologies. She has particular experience in information management and in the role of support services in distance education operations.

- Dr. Ralph Meuter, the evaluator for the New Pathways Project at West Virginia University, is the Dean of Regional and Continuing Education at California State University, Chico. Ralph works in educational technology development for continuing education in both public and private settings. He has delivered over 100 presentations on planning, development, and implementation of distance education programs to state, national and international groups, and was a principal evaluator for a National Endowment for the Humanities project involving Utah State University.

The Western Cooperative has decentralized its evaluation process to take advantage of the expertise of these evaluators and the unique opportunity to bring them together. They bring to this undertaking a wide variety of knowledge and professional commitment to change in education and specifically to providing educational service to previously unserved and under-served students. They, as individuals and as a group, also have provided invaluable advice and direction to the development of the overall evaluation. They have been a valuable source of information and support for the individual projects they are evaluating.

Evaluation approach. The coordination of the evaluation team's activities was provided by the Western Cooperative staff. The framework for the overall evaluation of the New Pathways to a Degree Project was provided by Dr. Sally M. Johnstone, who is currently the Director of the Western Cooperative for Educational Telecommunications. She has also led the development of educational delivery systems used to bring courses to rural areas. Sally has published several articles concerning effective use of educational telecommunication technologies and policy issues, and has given dozens of presentations to regional, national, and international groups on educational telecommunications topics.

The development of the evaluation process occurred with the constant input of all these individuals. This included development of survey protocols (included as Appendix 1), analysis of initial Western Cooperative environmental scan surveys of the type of data available at the individual projects, and structuring the format for this initial report. The environmental scan surveys were developed primarily by Ellen Wagner and were a vital element in determining what types of data would be available at the individual project sites. These were sent to the individual project directors in June of 1991, and returned to the Western Cooperative in early September. Five of the seven projects returned the survey; two were unable to appropriately address it at that point. The instrument used for the environmental scan of data sources is included as Appendix 2.

During this first year of the evaluation, the team met regularly via conference calls to be briefed by the Western Cooperative staff and to discuss the evaluation procedures.

They also met face-to-face for a day-long session in October to finalize the interview protocol for the first site visits, which were conducted between October 1991 and February 1992. The evaluators spent at least two days at their sites. They also spent a great deal of time in face-to-face and telephone conferences with key members of the project teams at the institutions.

OVERVIEW OF THE BOOK

The reports resulting from these initial site visits and interviews are found in Chapters 2 through 8. They have a consistent format that was developed by the evaluation team members and the Western Cooperative staff. This consistency should allow readers to easily digest the complex reports and allow them to draw comparisons between the unique projects. A summary chart in Chapter 9 should also help the reader understand these projects. This concluding chapter summarizes the dominant themes that emerged from the evaluators' first site visits, and the additional first-year New Pathways activities. These summaries will provide the evaluation team with the basis for decisions about specific data to gather during the coming year.

Chapter 2

BACCALAUREATE DEGREES AND STUDENT SERVICES USING THE NEW TECHNOLOGIES TO EXPAND ACCESS

OREGON STATE SYSTEM OF HIGHER EDUCATION

John Witherspoon
Department Chairman, Telecommunications and Film
San Diego State University

GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. The grantee is the Oregon State System of Higher Education (OSSHE), which consists of (in order of student population) The University of Oregon (UO), Oregon State University (OSU), Portland State University (PSU), Southern Oregon State College (SOSC), Western Oregon State College (WOSC), the Oregon Institute of Technology (OIT), Eastern Oregon State College (EOSC), and Oregon Health Sciences University (OHSU). Institutions specifically involved in this New Pathways project are Oregon State University, Eastern Oregon State College, Oregon Health Sciences University, and Central Oregon Community College (COCC), located in Bend. It should be noted that Oregon's community colleges are not part of the Oregon State System of Higher Education, and that there is no unified community college system; we shall revisit the implications of that fact.

The population of Oregon is heavily concentrated in the Portland area and in the Willamette Valley which extends south from Portland. Broadly speaking, the emphasis of the state's business and the weight of its population are along the Interstate Highway 5 corridor which runs south from Portland through the Willamette Valley to the California border. Of the 63,276 students registered in OSSHE institutions at the time of the New Pathways proposal, 77 percent (48,617) were at The University of Oregon, Oregon State, or Portland State. The University of Oregon and Oregon State are about 40 miles apart in the Willamette Valley, and Portland is about 70 miles farther north.

While most outsiders (and not a few Oregonians) picture the state as the green Willamette Valley or the wonderfully scenic coast, most of Oregon's territory lies east of the Cascade Range and consists variously of high desert, pine forests, rugged mountain country, and the lava formations of ancient volcanos. Eastern Oregon State College, located near the northeastern corner of the state in La Grande, serves an area of 42,000 square miles--larger than 16 states and comparable in size to Kentucky or Ohio--with a total population of 162,000. Seven of the region's counties have a population density of fewer than five persons per square mile. The State of Oregon

is attempting to make higher education available to all its citizens in spite of these daunting geographic and demographic problems and the difficulties facing virtually all areas of the American economy today. A 1982 policy action of the Oregon State Board of Higher Education provided for "a centrally coordinated, institutionally based off-campus instructional program," funded in the same manner as on-campus enrollments unless the Legislature decided otherwise.

In 1989 HB 2366 provided:

For each institution under its jurisdiction, [OSSHE] shall provide opportunities for part-time students to obtain complete undergraduate degrees at unconventional times, which include but are not limited to early mornings and noon hours, evenings, and weekends. In administering these degree programs the institution may use any education facility available for the use of the institution. The degree program shall be self-supporting.

In 1989 the Legislature also authorized Ed-Net, the technological foundation upon which this New Pathways project is built, and which, when fully operational, will consist of three statewide networks as follows:

- Network 1: Two channels of full-motion conventional video, one-way outbound with two-way audio. Seven hundred receive sites are intended eventually; 96 were operational in November 1991.

- Network 2: Thirty channels of compressed video, designed for fully interactive video and audio. Network 2 is planned for 39 send/receive locations. The system was activated in December 1991 with a half-dozen initial sites. Eighteen sites are being brought on line initially, with the remaining 12 to follow.

- Network 3: A statewide data network that will provide additional resources for library access, student support services, and course delivery. In December 1991 the network was not yet operational; however, software commitments had been made and installation of the system was underway. A pilot test linking Eastern Oregon State College and the State Library in Salem (located in the Willamette Valley near Corvallis) was planned for January 1992. Network 3 is considered critical to OSSHE institutions seeking accreditation for their degree programs to distant students.

Goals of the Project. The Oregon New Pathways Project will extend three existing programs:

- o B.S. in Agricultural Business Management. This is a current joint program of Oregon State University and Eastern Oregon State College. Using Ed-Net, it is intended that the delivery between the two campuses (about 370 miles apart) will be more effective, and that the program will be delivered to other locations in the state.

- o B.A./B.S. in Liberal Studies. This program is offered by Oregon State University to students in Bend. Through Ed-Net and this project it will be offered to other locations throughout the state, with emphasis on community college locations.

- o B.S. in Nursing. This is a joint program between Oregon Health Sciences University and Eastern Oregon State College. The goal of the project is to use Ed-Net to increase the effectiveness of this program and to expand the availability of baccalaureate-level nursing education to other locations in the state.

A fourth part of the Oregon project focuses on student services. A model effort--based at Eastern Oregon State College--is intended to determine, design, and disseminate policies and procedures regarding the delivery of support services needed to accompany degree programs delivered via Ed-Net.

The students to be served by the New Pathways Project are Oregonians for whom these educational opportunities would not otherwise be available. Many who need these programs are place-bound, and it is infeasible to establish new four-year institutions in the areas to be served.

Based on present experience with these programs, OSSHE anticipates 88 degree students (plus others taking individual modules) in Agribusiness; 80-90 students in the Liberal Studies program; 60 Nursing students from Eastern Oregon State College, 75 in the mid-Willamette Valley, and an undetermined number of place-bound RN's receiving special programs. (Oregon Health Sciences University in Portland is the state's only institution offering baccalaureate-level nursing programs.)

Due to inevitable delays in building Ed-Net, the Oregon New Pathways Project launched the first of its courses (part of the Liberal Studies program) in fall 1991. The pace of the program will increase dramatically early in 1992 with the availability of Network 2.

The technology used in the one New Pathways Project course offered to date has been one-way conventional video. For this course, both Ed-Net's satellite-based Network 1 and the pre-existing microwave system which serves parts of the state are

available. Audio feedback is always included. Future courses will typically use Network 2's interactive compressed video-plus-audio, which is much less expensive than Network 1. As Network 3 becomes available it will be used initially for library access, student support services, and course-related electronic mail, and as the network is completed and user familiarity grows, for more comprehensive use.

Costs will be considered further in this report; however, major cost elements in decision-making are as follows:

- Network 1 (conventional full-motion one-way video plus two- way audio): $160 per hour.
- Network 2 (two-way compressed video plus interactive audio): $30 per hour for 20 students, $2 for each additional student, regardless of the number of sites.
- Network 3 (data network): no additional charge.
- Receive site charge: anticipated average is $15 per hour.
- Capital equipment cost for classroom studio: average $60,000.
- Production cost (assumes a live classroom format): about $30 per hour (this varies considerably; $30 is considered high-end).
- Coordination and administration at origination site: $25 per student credit hour as a planning figure.
- Instructor/departmental stipends: $300 per course hour for up to 30 students, $400 per course hour for 30-50 students, $500 per course hour for 50-75 students, as planning figures.

Approach to Marketing. The programs offered in the Oregon Project are substantially different from each other, appealing to different kinds of students, and thus the marketing approach varies. The Agribusiness program is, at least initially, directed to students who are already involved in the pre-existing Oregon State-Eastern Oregon program; the Nursing program is directed primarily to RN's who wish to complete a baccalaureate degree program; the Liberal Studies program is based initially on a long-standing relationship between Oregon State and the community college in Bend. Basic marketing, then, is part of the ongoing outreach programs of these campuses. The people involved in these programs don't talk

much about marketing per se; but they have a common emphasis--almost a missionary zeal--about establishing and maintaining positive contact with their students. More broadly, their marketing strategy is reflected in such common specifics as the following:

- Emphasizing the delivery of programs, not courses. Eastern Oregon State College, for example, guarantees its students that they will be offered a full certificate or degree program despite variations in course enrollments, and so forth.

- Determining to treat distant students the same as those on the campuses with a full program of student services for financial aid, library access and advising. As a result of the New Pathways Project, Eastern Oregon has added an 800 number and a rapid-response help system.

- Involving students in questions of where to offer programs. For example, the Liberal Studies program held community meetings in several locations to determine local interest. Students who had completed community college or who had one to two years of lower division work were particularly invited to attend.

- Encouraging distant students to feel a part of the institution. For example, Eastern Oregon discovered that distant students value the idea of having a regular student ID card, and so ID cards are issued. The college also publishes (with the permission of those involved) local directories of students taking a given course, in order to encourage college-based student-to-student contact.

- Continuing contact between OSSHE and the individual institutions, another layer of marketing. Through December 1991 there had been four New Pathways Project newsletters providing updates on the Project programs, the progress of Ed-Net, profiles of the people involved and highlights of activity.

People Involved in the Project. The Oregon New Pathways Project is directed by the OSSHE Associate Vice Chancellor for Academic Affairs and coordinated by the Director of the Communication Media Center of Oregon State University, who currently also holds a half-time appointment with the OSSHE Chancellor's Office. Each of the four project segments is coordinated by a senior faculty member or administrator from the responsible institution.

The Coordinator of the Liberal Studies Program is an Associate Professor of Art History, Oregon State University. The Coordinator of the Nursing Program is Associate Dean for Undergraduate Studies, School of Nursing, Oregon Health

Sciences University. The Coordinator of the Agribusiness Program is a Professor in the College of Agricultural Science, Oregon State University. The Coordinator of the Student Services segment is Director for Individualized Studies and Weekend College, Eastern Oregon State College.

Oregon Ed-Net is a separate agency, authorized by the Legislature and guided by a Board appointed by the Governor and approved by the Senate. The Ed-Net Director is appointed by the Board.

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Relationships. The Oregon New Pathways project is administered by the OSSHE Chancellor's Office. The Project Director is the Associate Vice Chancellor for Academic Affairs, and the Project Coordinator (currently half-time with the Chancellor's Office) is Director of the Communication Media Center of Oregon State University. The Media Center also provides production support services to courses originating from Oregon State University.

The key relationships are

1. between the project management and the four component programs, which involve three of the OSSHE institutions;

2. between the project and the institutions which serve (or might serve) as receive sites (typically community colleges); and

3. between the project institutions and the management of Ed-Net.

Less obvious but of great long-term importance are the relationships that are linked with state policy. The New Pathways project and the advent of Ed-Net have combined to focus and accelerate policy making concerning distance education within OSSHE and the Legislature. During fall 1991 OSSHE provosts and presidents considered a set of working papers which ranged over many policy issues including (1) guidelines for OSSHE Ed-Net operations (now formally adopted), (2) allocation of curriculum responsibility between the community colleges and OSSHE, (3) curricular allocation within OSSHE, (4) accreditation, (5) residency, (6) enrollment targets, (7) fees, (8) costs associated with distance education and Ed-Net, and (9) new organizational models for distance education. (Oregon is considering whether to establish an Oregon version of the Open University, based on its capabilities in distance education.)

Of these varied relationships, the most difficult is that between the OSSHE institutions and the community colleges in the state. Since there is no unified system of community colleges in Oregon, the individual colleges are taking individual approaches to Ed-Net services. For example, the planning figure for receive site costs is $15 per hour, but figures as high as $50 per hour have been discussed by some colleges. The availability of baccalaureate courses in some areas may depend upon the development of mutually feasible working arrangements between the colleges and the OSSHE institutions.

Student Support Structures. In the Oregon New Pathways Project there is a specific component devoted to student support. As noted above, Eastern Oregon State College has a strong history of service to students throughout its sprawling territory, and it is moving strongly to develop a model for provision of student support services. Elements include

- Developing programs for counseling, academic advising, and handling student complaints;
- Establishing an 800 number to facilitate student services;
- Publishing "help cards" for information and inquiries;
- Inaugurating phone-based registration (forthcoming);
- Establishing competent library service, using arrangements with public libraries and educational service districts and administering a "pony express" delivery of material;
- Building personal links between students and their nearest regional center directors.

Coordinators of all four components place great emphasis on the importance of the local site administration.

Since course delivery has barely begun, it is too early to assess these student services specifically against the New Pathways program. However, the New Pathways project is building on established activity in Oregon, and it is easy to observe that those responsible for these services are well grounded, impressively knowledgeable, and committed to their work.

Faculty Support Issues. For originating faculty, support can be divided generally into three categories: incentives, faculty development, and production support.

Incentives. The Oregon New Pathways project budget provides for faculty payment. In fact, the funds set aside as faculty incentive have been used differently in each of the components. Liberal Studies faculty receive a modest stipend. Funds earmarked for Agriculture and Nursing go to the faculty member's college or department, with only marginal benefit accruing directly to the faculty member. This disparity appears to make absolutely no difference. Faculty members reported that they are involved in the project because they like being on the cutting edge, like to use media in teaching, and like to work with off-campus students.

Faculty development. The principal mechanism of faculty development is a series of workshops, the first of which was held at Oregon State in June 1991. It focused on production issues: graphics, presentation skills, copyright issues, and syllabus development for distance education courses. A handbook for faculty members engaged in distance education has also been produced. A workshop on student services (plus Network 3) is on the calendar for January, and still another workshop is scheduled for June 1992.

Production support. Production support consists of assistance in instructional design, preparation of graphics and other materials, and technical support in the classroom studios. It is provided by the originating institution.

Staff Support Issues. Support activity for the staff evolves with the program. Production staff support is linked to faculty workshops. Student services staff are heavily involved in the Eastern Oregon program and in the development of new sites for the statewide program as it grows. There is no separately identified program of staff support.

Cost Factors. Basic elements of cost were introduced above. The Project Coordinator has developed a series of cost scenarios, using the figures cited, a series of stated planning assumptions, and a student-paid Ed-Net fee of $100 per student per 3-hour course. The scenarios are based on varying numbers of students and numbers of sites. The projections range from a deficit of $174 (15 students at two sites) to unspent revenue of $4,524 (60 students at eight sites).

Certain costs cannot be readily isolated, and at present they remain as planning variables or as core institutional expense. These are such items as maintenance of multi-use facilities, evening or weekend access to facilities, incremental costs of affected administrative units, and so forth. Cost benefit considerations are treated below.

FACUI TY REACTION TO THE PROJECT

Information about Interviewees. In the first evaluation visit three of the four Component Coordinators (the Coordinator for Agriculture was out of the state), plus three members of the Liberal Studies faculty, three members of the Agriculture faculty, and three members of the faculty in Nursing were available. (For this evaluation the assistant deans of Liberal Arts and Agriculture are counted as faculty rather than administration, since their comments focused primarily on faculty issues.)

Course Development Issues. Faculty members interviewed were quite comfortable with the support received for course development. The first workshop was clearly helpful, and representatives of the Liberal Studies and Agriculture faculties commented favorably on the support received from the Oregon State University Communication Media Center. There was no apparent apprehension about course development in any of the components.

Technology Issues. Technology selection is currently a non-issue: planning is based on Ed-Net Network 2, i.e. two-way compressed video plus interactive audio. The computer communication capability of Network 3 is eagerly anticipated but is currently an unknown quantity.

The use of video technology is seen by the faculty as a positive aspect of the course. Faculty believe that the discipline imposed by the technical environment makes for better courses. Within the Liberal Studies group there was initial concern that the students in Bend would resent televised classes (for instance, is this a second-class method the universities put together as good enough for the provinces?), but in fact the students are excited about it--because their teachers are excited about it.

At present the selection of locations within the state is somewhat constrained by the still-spotty availability of the Ed-Net system. When the three networks are complete, there will be essentially statewide coverage by interactive video, voice, and data.

Network 3 (the data network) will facilitate library access and student services, and will provide the faculty and the instructional support units a much richer palette on which to design courses. As noted above, this is particularly important in situations where accreditation is an issue, in order to assure that the full range of services and library access are available. Two technical problems were reported by faculty members:

- Students at remote sites sometimes have trouble operating the system. The receive sites need to assure adequate orientation.

- It is occasionally difficult for the instructor to maintain eye contact with the lens, mostly because the camera is mounted substantially above the level of the class.

Pedagogical Issues. A major interest of the Liberal Studies faculty was the positive impact of the distant (Bend) students on the class as a whole, and the effect of the video option on the dynamics of the class. The students in Bend are older (average age in a recent class was 42), and they bring a mature attitude, perspective, and seriousness of purpose which is "good for the younger kids" and adds remarkably to the quality of the class. Furthermore, particularly because of these older class members, "weak faculty members on TV won't survive . . students in the sites won't tolerate [poor teaching]." (In the most recent course the Bend students scored higher than the Corvallis students. Faculty members believe it was a function of attitude rather than pedagogy.)

Having the instructor on television encourages a kind of multi-layered experience: students at the distant sites become a "group within the group," discussing elements of the course while it's in progress, with no damage to customary audience courtesies. On the Corvallis campus last semester's Liberal Studies course was taught in a classroom-studio, with another television-equipped classroom for overflow. The instructor soon discovered that some on-campus students gravitated to the overflow classroom, and they did so not (as he initially assumed) to avoid the hazards of being face-to-face with the professor, but in order to have the instant discussions possible for a "group within the group."

At the same time, there is some indication that the small corps of Liberal Studies students in Bend may be a bit intimidated by large classes, in spite of the fact that their classmates are many miles distant in Corvallis.

For the Agriculture faculty a major pedagogical advantage of the system is the ability to make use of the expertise available beyond the classroom. Portland, for example, has a state-of-the-art Export Services Center which has made a major difference to Oregon agriculture. Its inspection programs and business development activity have had the effect of adding substantial value to Oregon products by opening the Japanese market. With Ed-Net the expertise of the Center is available to students statewide. Similarly, faculty specialists from Corvallis can take part in courses for Eastern Oregon students, and the La Grande-based faculty can provide research and insights not readily available in the Willamette Valley. The La Grande component of the Agribusiness program, incidentally, is by no means a second-tier version of a Corvallis curriculum. Last year one of the La Grande-based Oregon State University professors of Agriculture was named the University's outstanding teacher.

As in Agribusiness, the faculty in Nursing expects the program to add an important dimension of expertise statewide. They point out that those studying medicine need a better understanding of the culture of small towns: "Ed-Net can provide 'in-reach' as well as outreach."

In Agriculture an additional pedagogical component is added by the fact that Oregon is a charter member of AgSat,[2] and Ed-Net courses are being coordinated with AgSat-based courses. One element is that AgSat courses are being offered with additional local components provided by local faculty for additional credit. It should be noted that the program emphasis in Agriculture--and to some extent in Nursing--is the preparation of course modules rather than conventional class sessions.

Additional/Summary Comments. Two additional areas came up in every faculty conversation: a project-wide perspective on curriculum and organization; and a firm and consistent understanding of why they're involved with the New Pathways Project. These points are expanded as follows:

Perspective. Principal points included:

- Personal contact with the people of the distant areas is critical. The success of the Liberal Studies program in Bend is due to the Bend staff. Their contribution is much more than technical: students need help with financial aid, library services, and other areas of support. These are not typical students: of a recent group of 66 in Bend, 58 were women, typically single parents trying to advance their lot. Financial aid is crucial.

- Why choose to offer a given curricular area? There are three pertinent criteria: to build on experience with existing programs; to listen to the results of a real needs assessment; to choose programs that are self-renewing, either because they deal with changing technologies (e.g., nursing technology) or because there is a succession of new student populations.

- Local people must be involved in determining the program. People in Bend initially wanted business courses, then discovered that Liberal Studies really could prepare them to hold jobs.

- It's important to have on-site activity as well as television.

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[2] AgSat, the Agricultural Satellite Corporation, is a nonprofit organization created to develop a national satellite network to share agricultural information and instruction. Membership is open to all land grant universities.

- One benefit of the New Pathways program is that the Chancellor's Office must find ways to have people collaborate. The result will be a more integrated system, and integration is happening fast as the Project develops.

- The Project can already foresee running short of capacity at times that people can take the courses (evenings). They are looking at alternative course scheduling and formats so that they can offer more courses during this prime time.

- A course in Bend (or the other sites) costs $300, or 50-60 percent more than an on-campus course in Corvallis. That is offset to some extent by the fact that students need not pay other fees, or cover board and room expenses, and so forth.

- There is a perceived advantage to the delayed technical development of Ed-Net: the state has done its own development slowly enough to be sure of what it is doing.

- Ed-Net is helping the faculty to see a bigger picture. Previously it was too easy to focus almost exclusively on one's own specific interests. Furthermore, Ed-Net permits teachers to link students to actual business activity.

- The project has the positive effect of breaking down barriers between disciplines and between institutions.

Why are faculty involved? Representative comments follow (those not in quotation marks are paraphrased from notes):

- There's a <u>little</u> extra money (for the Liberal Studies faculty), but not nearly enough to be a reason to do this.

- "It's the most rewarding teaching I've ever done."

- "The older students are fun--they change the nature of the class."

- I enjoy working with TV--I like performing. And I like teaching and working with students.

- "Has made me a much better teacher . . . and stimulated my research."

- "It's the future." I'm not a techie--don't even have a computer--but this is a lot better than traveling that 370 miles between here and Corvallis (from La Grande).
- Personal interest--"This is a classical skunk works." "Love the visual potential."
- Enjoy contact with students elsewhere (Bend) and their effect on local students.
- A big advantage is the chance to interact with the faculties in the other disciplines.
- I do a better job in TV lectures . . . more organization, better command of visuals.
- "I like the medium . . . an opportunity to develop good materials . . . believe in the mission . . . excited about being on the cutting edge" (from Nursing).

STUDENT REACTIONS TO THE PROJECT At the time of the first evaluation visit only one New Pathways course had been offered and the institutions were starting the winter break, so no students were available for interview. Observations about student issues are incorporated elsewhere, and will, of course, be developed following the second site visit.

ADMINISTRATORS' REACTIONS TO THE PROJECT

Basis of Information. Administrators interviewed were the Project Director; the Project Coordinator; the OSSHE Vice Chancellor for Academic Affairs; the Provost of Oregon State University; the Assistant Vice President of Oregon State; the Dean of Students and the Dean of Continuing Education at Eastern Oregon State College; the Associate Dean of Agriculture, Oregon State University; the Associate Director of Continuing Higher Education, Oregon State University; and the Director of Oregon Ed-Net. Except for the Project Director and Project Coordinator, none has line responsibility in the project, but all are clearly knowledgeable about it and are and will be directly involved in decisions resulting from its successes and implications.

Faculty Related Issues. Principal faculty related issues are as follows:

How are teaching faculty chosen for the project? In each of the three curricular areas, the criteria were

- o that they be relatively senior people, highly visible, respected by their peers;
- o that they be known to be good teachers;
- o that they like the idea and want to do it.

Project administration noted that they could have begun with more people, but they deliberately held back until the first, known-quantity recruits were well established. Part-time contract instructors were avoided: it was important that this activity be perceived as a mainstream university initiative.

What are the faculty incentives? As noted elsewhere in this report and above, stipends were not important. Some of the funding for the courses apparently provided some released time, which was mentioned specifically only once by a faculty member, but which presumably is an important part of the preparation period. However, faculty members and administrators both consistently mentioned the need to consider this work among the criteria for reappointment, promotion, and tenure. The Associate Dean of Agriculture volunteered that work on the New Pathways project (and the continuing developments that flow from it) attracts the good people and is considered like a major grant in reappointment-promotion-and-tenure deliberations (that is apparently a new development). Nursing and Liberal Studies have recognized the issue but have not taken formal action.

Technology Issues. At the time of this visit there were no profound technology related controversies. Network 2 was just arriving, with the promise of fully interactive video and an upgrade in the effective frame rate already scheduled. Network 3 was needed, but it was proceeding on a known schedule. Network 1 was operational and had been a great political success. To date the selection of technology for a given application was driven essentially by what was available or imminent, and in December 1991 the all-purpose answer was Network 2 (Network 1 is one-way video and five times as expensive per hour).

Institutional and Political Issues. The timing of the New Pathways Project could hardly be better. Coupled with the advent of Ed-Net, the project is having a profound impact on policy making and the evolution of the state's system of higher education. Curiously, the political environment of Ed-Net was enhanced by a state financial crisis. The voters recently passed Measure 5--a relative of California's Proposition 13--which had the effect of requiring the state to relieve communities of key financial burdens. The effect on public higher education was immediate and dramatic: a 10 percent cut this year and the prospect of as much as 25 percent next year. Other services felt similar trauma. Faced with an urgent need to craft a tax policy that would be acceptable to the voters and keep the state solvent and

operational, Governor Roberts conducted a series of "Conversations with Oregon," using Ed-Net Network 1 plus some written surveys. Her initiative was a success, both for her and for Ed-Net (the fiscal result for the state is not yet known).

One unanticipated result of these statewide "conversations" is that older people, traditionally believed to be uncomfortable with the gadgetry of information, were reported to be excited about the prospect of this new technology.

Furthermore, the Ed-Net development has scrupulously involved the leaders of Oregon's public sector, and the buy-in appears to be remarkable. Within higher education the network is seen not as yet another cost center, but as a mechanism to address the problems of a difficult time. In that context the Oregon New Pathways Project has the effect of accelerating the development of state policy.

During fall 1991 the OSSHE Academic Council (the Academic Vice Presidents of the OSSHE institutions) met twice to consider issues including the following:

- Allocation of curriculum responsibility between the community colleges and OSSHE,
- Curricular allocation within OSSHE and originating institutions,
- Accreditation,
- Enrollment targets,
- Fees,
- Set-up costs for classrooms using Ed-Net,
- Evaluation and assessment, and
- Guidelines for OSSHE Ed-Net operations.

The New Pathways project administration was central to the development of the documents which formed the basis of the Council's discussions. Another meeting is scheduled for January 1992.

The OSSHE Vice Chancellor for Academic Affairs describes the New Pathways Project as "legitimating," providing important impetus to statewide services clearly needed by Oregonians in a time of change. She points out that the advent of Ed-Net raises numerous policy issues, rooted in such basic facts as (1) Ed-Net cannot provide an infinite number of channels; (2) new demands are placed on the apparatus of

continuing education as well as the core academic structure; and (3) OSSHE institutions are in different states of readiness for change.

Meanwhile, the Annenberg/CPB grant has the effect of affirming that change is taking place.

Based partly on the processes unleashed by the New Pathways Project, Oregon is now considering whether to establish a "distance university."

Perhaps the most troubling institutional issue is the relationships with the community colleges, which are seen as the most obvious receive sites for New Pathways programs and their successors. As educational institutions at all levels face both increased demands on access and the need to reduce budgets, it is imperative that the issues of articulation between community colleges and OSSHE institutions be addressed and resolved. The New Pathways Project provides an immediate framework for those negotiations.

Other potential barriers include

- OSSHE institutions have widely varying perspectives concerning the whole question of distance education. The University of Oregon, for example, perceives itself to be a residential research university, with all the traditional values and questions about quality that one might expect from that culture. Oregon State University, the land-grant institution, has a strong tradition of continuing education; Eastern Oregon State College is oriented to serve a huge area with a small population; Oregon Health Sciences University has a unique statewide mission; and so on.

- Campuses vary on such questions as whether faculty members should teach New Pathways courses as part of their basic load or whether there should be released time, special compensation, and so forth. This issue is complicated by the fact that the faculties of the regional institutions have a higher basic teaching load than those at the research universities.

- Within this climate of change, turf issues rise inevitably. These could, for example, damage the working relationship between Oregon State University and Eastern Oregon State College.

- In a time of financial difficulty there are inevitable problems of morale and the danger of malaise in the faculty, exacerbated by limitations in facilities. "However," says the OSSHE Vice Chancellor for Academic Affairs, "we still do have resources; we just need to deploy them properly." Ed-Net and the New

Pathways Project are clearly important to these questions of resource allocation.

Cost/Benefit Issues. The basic cost/benefit message--repeated over and over at all levels from Vice Chancellor and Provost to deans to teaching faculty--is that even (especially?) in difficult times, Ed-Net is part of the solution, not part of the problem. The New Pathways Project has the effect of focusing and strengthening that perception.

Not all costs can be readily identified. The Vice Chancellor mentioned the stresses on the continuing education apparatus and on the academic structure of the institutions. The working technical support units are stretched incrementally. The policy machinery at individual campuses and system wide is working overtime. Issues ranging from accreditation to residency requirements to appropriate fees to program quality are ever- present and devour time. At present, key faculty members are participating because the program is "cutting edge," but what will happen when it is routine but the additional time demands are still there?

Despite all the unknowns, however, the present judgment is that the benefits made potentially available by Ed-Net and demonstrated by the New Pathways Project vastly outweigh the costs.

Pedagogical and Student Support Issues. The most important of these issues have been addressed previously. Additional points follow, again paraphrased:

- OSSHE Vice Chancellor for Academic Affairs: It was important that the New Pathways Project start in a tough area of the curriculum. It would not have been enough to work only with the humanities. The decision to include Nursing was important. Now there is some pressure for a baccalaureate program in Education to be carried on Ed-Net.

- An ongoing point of discussion: What constitutes production quality from the standpoint of pedagogical effectiveness? Some faculty members feel that it's possible for these classes to be over-produced, and that a simple, conversational style works best.

- As it becomes possible to interact effectively with more than two sites, what will be the optimum number? At what point is it no longer possible to keep multiple groups of students engaged? (The idea of a format other than conventional classroom-plus-graphics seems not to be part of the conversation.)

- At all levels there is a view that the use of this technology improves instruction, and that it can have a positive impact on campus as well as in distant sites.

- Particularly at senior administrative levels there is an expressed view that student demographics are changing, that the institutions have a mandate to serve them, and that the provision of appropriate support services is a critical part of the problem. There is much interest in the New Pathways student services component of Eastern Oregon State College.

Greatest Gains for the Institution. The following points summarize the major benefits of the New Pathways Project from the standpoint of institutional administrators:

- The project has aided in development of important statewide policy in higher education.

- The project can result in improved instruction throughout the system.

- The project requires increased levels of collaboration among institutions.

FIRST VISIT SUMMARY

General Analysis of Interviews.

How well are project goals being addressed in actual practice? Goals are being addressed with enthusiasm and commitment. The faculty have been carefully chosen and are extremely well motivated. While there has been little actual production to date, the infrastructure for course development and support appears to be sound, and the faculty development activity has been praised by faculty and administration alike. The original timetable for course delivery has been frustrated by inevitable delays in the construction of Ed-Net, but the additional startup time may be a positive factor in the long term. All concerned will be happier when they are actually producing more courses, but the project is soundly managed and the goals are being addressed clearly and appropriately.

What, if any, are the problem areas for the success of the project? The most vexing and dangerous problem area is the lack of a clear and consistent relationship between OSSHE institutions and the state's community colleges, which are assumed to be the receive sites of choice for distance education programs transmitted via Ed-Net. At present there is no consistent cost structure or access policy, due largely to the fact

that the state has no unifying system of community colleges. This problem could have serious implications for the availability of baccalaureate programs in many areas of the state.

A second problem area is that OSSHE involves a very wide range of institutions, with different cultures and perceived mandates. This is not nearly so serious as the community college problem, however, and the policy issues are actively being addressed.

Finally, one must assume that in difficult financial times parochial instincts for self-preservation could be heightened sufficiently to endanger the position that Ed-Net now enjoys. For example, will it be seen as a solution or an unwelcome drain on resources if OSSHE institutions start laying off tenured faculty?

What is working well, and why? Strengths of the project vastly outweigh the prospective problems. The goals of the project address actual needs, and they are being addressed with skill and understanding. The teaching faculty, respected by peers and known as good teachers, are in love with their work, and they are being well supported. There is meticulous attention to the student support requirements. Policy issues have been recognized and are being addressed actively at the top levels. Ed-Net is perceived to be an overwhelmingly positive investment in the state's future.

Do top administrators seem to have a good understanding of the project? Are they supportive? Those consulted included the most senior academic officers of OSSHE and Oregon State University. They--and the deans and other administrators also involved in this visit--have a remarkably solid understanding of the project and its implications for their institutions and their state. They are uniformly supportive.

At this point in the project, what do you think will encourage or discourage the continuation of the project after the Annenberg/CPB Project funding ends? Continuation will be encouraged by the primary fact that the project is firmly rooted within programs that were underway or planned before the New Pathways Project began. The project has enabled OSSHE to move more assertively, to take some dramatic positive steps (e.g. in Eastern Oregon's student services), to legitimize these distance programs among OSSHE's several publics, and to gain momentum and capture the opportunity presented by the advent of Ed-Net. The net effect is that the New Pathways, again from the perspective of a first visit, is likely to continue because from its inception it is at the leading edge of a mainstream activity.

It's hard to see what would have the effect of discouraging continuation, absent a financial crisis much greater than that foreseen. One way or another, the community

college issue will be resolved or circumvented, and the other issues to date are relatively minor.

How will this project have an effect on the likelihood of other institutions developing similar projects? The Oregon New Pathways is bound closely to the characteristics of Oregon and the advent of the state network, and so the overall project model would be most applicable to states with a comparable combination of geographic/demographic problems and transmission capability. However, some likely lessons from the Oregon project probably have broad applicability. These could include

- Faculty selection procedures and criteria,
- Research results concerning the application of compressed interactive video in distance education,
- Assertive attention to policy issues,
- Procedures for selection of programs and sites, and
- Attention to student services.

Summary of Evaluation Outcomes

Since only one pilot course had been delivered at the time of the first evaluation visit, it is too early for a general assessment of instructional design effectiveness or instructional delivery effectiveness. Organizational development and support systems, however, appear to be exemplary: clear lines exist between the project administration and the four components; a faculty development program has been well received by those participating; support exists for course development and production that--at least at this early stage--has made faculty and departmental administration confident of success; substantial and creative attention to student support exists; an understanding of policy issues is evident, as is active attention to their resolution. Following are several unrelated items that are important to the project.

- The matter of accreditation arose several times in the evaluation visit. The core of the issue is that moving a degree program to a new area is seen by the accrediting agency as a substantive change, requiring a formal accreditation proceeding. In addition, these "new" programs need curricular review in their home institutions and system wide. There is a current drive to simplify the

process. OSSHE staff is going to the Oregon Board for approval of a new procedure in January 1992.

- The Vice Chancellor for Academic Affairs noted that many institutions have much to learn about distance education from the third world. The OSSHE Chancellor is involved with Pacific Rim higher education developments and is interested in such distance education activities as those of Thailand.

- One of the seemingly small but very powerful achievements of the New Pathways Project group in Oregon is that the OSSHE institutions have agreed on a common registration form for courses delivered by Ed-Net.

- The OSSHE institutions have no tradition of a common approach to student evaluations, but the Coordinator of the Student Services Component is developing a common form for the evaluation of student achievement in these distance learning programs.

- How should one measure the eventual success of the Oregon New Pathways project? Administrators suggest the following elements:

  1. Make the three degree programs available at distant sites.

  2. Make positive change in regular on-campus instruction as well as in distance education (Provost: With this program we are forced to think about how to teach, locally as well as remotely).

  3. Resolve policy issues.

  4. Establish sound working relationships with the community colleges.

  5. Accelerate a general movement away from place-bound programs (concern for time-bound programs seems not to be an issue at present).

- The Oregon New Pathways looks toward the prospect of sharing resources among states as well as within states (the WAMI [Washington, Alaska, Montana, Idaho] model is familiar).

- It is recognized that the New Pathways may lead to a future change in OSSHE institutional organization, with more collaboration among institutions.

Chapter 3

ELECTRONIC ACCESS TO WEEKEND COLLEGE

COLLEGE OF ST. CATHERINE
ST. PAUL, MINNESOTA

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GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. The College of St. Catherine is a liberal arts institution established in 1905 by the Sisters of St. Joseph and operated under the auspices of the Roman Catholic Church. It is a predominantly undergraduate institution with an enrollment of approximately 2,750 female students, making it the fourth largest women's college in the U.S. Men may attend classes, but they are not permitted to receive undergraduate degrees from the college. Master of Arts degree programs are offered in six fields. Men are allowed to receive degrees in these programs.

The college is located in St. Paul, Minnesota, and draws its student population from the Minneapolis/St. Paul metropolitan area, a region with a population of well over 2 million. More than half of the state's residents live in this, its largest, metropolitan area. St. Catherine's is only one of several private, liberal arts institutions offering degree programs in the metropolitan area.

In 1979 the college established a weekend baccalaureate program. This was the first weekend degree program in Minnesota. As a result of its successes and the college's continuing commitment to the adult, female student, 55 percent of the college's total enrollment is age 23 or older. Over 700 students are enrolled annually in Weekend College.

Weekend College courses are the same as those taught in the day school and are offered by the same faculty. Only the format is different. For example, some assignments are modified to be delivered more practically to students who are usually off campus. Weekend College courses meet for 3-1/2 hours every other weekend for 14 weeks.

Nine majors are offered in the weekend format, and more than 900 students have received degrees through the Weekend College program. The nine majors are business administration,communication, economics, elementary education,

information management, nursing, occupational therapy, philosophy, and social work. Although most students are from the metropolitan region, students have enrolled from throughout Minnesota and adjacent states. In a few cases students commute from non-adjacent states. In a typical year about 160 courses are offered through the weekend program by about 115 faculty.

In addition to credits earned by enrollment in these courses, students in the program, like other students at St. Catherine's, are able to earn credit through CLEP examinations and by documenting non-classroom learning. Credits may also be transferred from other postsecondary institutions, and especially from the state's community colleges with whom a special articulation agreement exists.

Goals of the Project. The New Pathways project at the College of St. Catherine will use computer and communications technologies to address the needs of students for access to courses from off-campus locations. Two groups of courses will be adapted to the new delivery system: 10 courses which can meet 10 of 14 general distribution requirements, and 7 required to complete the major in Information Management.

Students will be able to access these courses from their homes or, if they do not have all necessary equipment, from a nearby site such as a library, community college campus, or other public facility. On-campus students will also be able to take these courses.

The project targets two categories of students. According to documentation provided by Weekend College, approximately 200 to 250 regular students "stop out" each term. These students, the first group, are still committed to completing a degree but for personal or professional reasons are unable to register. The longer students go without registering, the greater is the likelihood they will not return to school. The other group of students are those living in rural or exurban areas of the state where access to four-year degree programs is more limited than in the metropolitan region.

Both groups of students will have increased access to academic preparation (in Information Management) which will prepare them to enter technology-oriented fields in which women are greatly under-represented. Such fields are also ones in which rural communities may find difficulty in attracting and retaining qualified practitioners.

The project will use HyperCard software to sequence and deliver the curriculum including syllabi, assignments, lectures (in text form), bibliographies, and study guides. As copyright restrictions permit, resource materials will also be included in each course's HyperCard package.

This individualized delivery will be supplemented with audio- and videocassettes (where appropriate), and electronic mail and computer conferencing facilities to allow students to interact with the instructor and with other students. Individual assignments, group projects, and other aspects of specific courses will be enhanced and facilitated by the addition of this component.

Approach to Marketing. Considerable student pre-application counseling (and marketing) is already provided for all Weekend College programs. This counseling includes support for development of a course-of-study plan. Thus, any student who is aware of and interested in the Weekend College program will be apprised of the availability of distance learning options.

One admissions counselor is a liaison to the community colleges in the state of Minnesota. This person will make sure that existing sources of students to the weekend program are aware of the additional options provided through the New Pathways project. (Between 200 and 250 students transfer into the Weekend College every year.)

As part of the college's marketing effort, a needs assessment was conducted in northern Minnesota. At the same time local resources were checked to determine the adequacy of one or more public facilities to serve as program sites and the potential of local libraries to meet course material needs.

An extensive marketing plan to focus specifically on the New Pathways courses is now under development. At a minimum, the college expects to have 20 students taking advantage of the New Pathways courses in the fall 1992 term. The program will be promoted through the usual channels--print advertisements in statewide media, contacts with community colleges, and so forth--and will also be targeted to the business community as a means for increasing the capabilities of existing corporate employees.

People Involved in the Project. People involved are the following:

- Project Director: responsible for all facets of the project's management; this role is served by the current director of the Weekend College program.
- Project Coordinator: responsible for day-to-day management of the various project components.
- Courseware Developer: develops HyperCard formats and assists faculty in course design.

- Evaluator: responsible for the formative and summative components of the internal evaluation including student outcomes.

- Project Committee: directs activities of the project and guides its development; includes project staff and team members.

- Advisory Committee: provides advice on issues concerning the project; includes representatives of academic departments, student support units, and the local business and telecommunication community.

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Relationships. The project's internal relationships are particularly strong because activities are housed within an established and well-respected unit (Weekend College) that is already an integral part of the institution's structure. Because St. Catherine's is a small institution with a highly developed sense of community, there appears to be considerable awareness of the New Pathways project among all segments of the campus.

The project was not originated by administrative or support personnel, but was proposed by faculty members who secured the support of administrative units which are participating. Faculty and staff function as a team to carry out the project.

Separate units or divisions do not exist to serve Weekend College (and New Pathways) students. All college-provided services are offered by the regular staffs of the offices which serve the needs of all College of St. Catherine students--traditional day-school students, weekend-college students, and graduate students.

Student Support Structures. As noted above, all student services are provided through a single set of offices whether those services are delivered to on-campus or distant students. The college places considerable emphasis on the "whole-student" experience and is committed to integrating all students, including distant learners, into the life of the community.

Recent federal decisions have raised questions about the provision of financial aid to distant students, and the college is concerned about the impact that this may have on its project students.

Since no students are yet enrolled in New Pathways courses, it is difficult to assess the effectiveness of student support structures in meeting the needs of the targeted population.

Faculty Support Issues. Since the project uses instructors who are regular members of the college's faculty, all the normal modes of faculty support are available to project faculty. This includes a range of development activities on campus and extensive regional and statewide faculty development opportunities. Faculty and student support units are represented in significant numbers on the project's advisory committee.

Staff Support Issues. Because services to Weekend College students are provided by regular college employees, special issues related to support of staff associated with the project do not appear to be a problem. Two key staff members, the coordinator and course developer, are new to the institution but appear to be well supported by the project director and the advisory body.

Cost Factors. Each faculty member who redesigns a course for delivery as part of the project receives a stipend of $1000. This is consistent with the practice associated with other course revision efforts on this campus.

FACULTY REACTION TO THE PROJECT

Information About Interviewees. Nine faculty members were interviewed in December 1991; six of these were currently involved in the project. The Information Management program was represented by two faculty. Other departments participating were Art History, Chemistry, History, Math, Philosophy, Psychology, and Theology.

Course Development Issues. A major concern involves the role of copyrighted materials in the HyperCard delivery system. The ease or difficulty with which students may access the required and supplemental course materials will be determined in part by whether those materials are available as part of the HyperCard stack or must be acquired separately. Decisions about what can be included in the stack will depend on the practices of the copyright holders.

Aside from this potentially high barrier to ease of access, issues raised by faculty were relatively minor. Working with a course developer seemed to raise some issues about course ownership. Likewise, there were concerns about the kinds of interactions to be expected between developer and instructor. No problems have arisen, but the new set of relationships seems to be something with which faculty are struggling.

Some interviewees noted that "lack of imagination," their own and others', could be one barrier to full success of the HyperCard delivery. The establishment of firmer

and earlier time lines for development of course components was one change that at least a couple of the project's faculty would have welcomed. Faculty are pleased with the electronic mail (e-mail) and computer conferencing components of the project because of the emphasis they will give to student writing skills.

Technology Issues. Faculty like what they perceived as the flexibility of the HyperCard approach and the ease with which future changes can be incorporated. They worry about the lack of standardization, however, wondering if another approach might come along and supersede this one. One weakness cited has to do with the lack of a zoom-in capability for graphic displays.

Inherent in many of the faculty comments was an overall concern about whether this technology will really work as well as anticipated. Since no courses are yet complete and no students have taken them, this concern is understandable.

Pedagogical Issues. Several pedagogical issues were raised, although none seemed to be of particularly great concern. Of course, nearly everyone wonders if this mode of delivery will be as good as traditional instruction. Implicit, too, is a concern about whether the individual faculty member will be able to block and sequence instruction in a way that will meet student needs. The issue of how to assess and take advantage of student motivation was also raised. Given the nature of this institution, faculty expressed concern about how courses delivered in this mode will impact the sense of community and loyalty traditionally found among students and graduates of the college.

Finally, at least one interviewee raised the issue of whether the instructor will be able to verify that a particular student (rather than a proxy) has completed the set of course assignments. Without face-to-face interaction, how can the instructor know that assignments haven't been completed by someone other than the registered student? (Another faculty member was quick to point out that a telephone meeting would probably be able to supply the answer.)

Additional/Summary Comments. Even those faculty members who are not participating in the project appeared to be well informed about it and interested. Participants are enthusiastic--often talking with each other and asking about experiences on the project.

STUDENT REACTIONS TO THE PROJECT

(Note: no students have yet had the opportunity to register for a course developed as part of the New Pathways project.)

Basis of Information. Seven students in the Information Management (IM) program were interviewed in a group. All of the students have been using electronic mail and computer conferencing as supplements to the twice-monthly meetings of specific IM courses. (Some of the courses currently using these technologies are ones which will be delivered at a distance as part of the New Pathways project.)

Motivational Issues. All students indicated that they would not have used the technologies if they had not been a required part of the course. However, after an initial period of time where "the going was rough," the technologies are now viewed as an enhancing aspect of the course.

Technology Issues. The negative aspects of the technologies included the amount of time required to become comfortable with their use (for some students this required two terms), and the lack of access to knowledgeable personnel who could provide assistance, especially at odd hours.

ADMINISTRATORS' REACTIONS TO THE PROJECT

Basis of Information. In addition to the project staff and the project director, interviews were held with members of the project's steering committee and with the academic dean.

Faculty Related Issues. Administrators perceive the project as beneficial because of its ability to capitalize on the natural curiosity of the faculty and to challenge them to develop new teaching skills. Because of the institutional value placed on commitment to students, selling the project has been quite easy.

An unresolved issue is how course development and delivery for New Pathways courses will be treated in faculty contracts. For example, it is feasible to offer a course in this mode, even if only one or two students are interested. But doing so raises issues related to faculty compensation, workload, and so forth. This issue will be addressed in the next few months.

Not unexpectedly, the issue of the time required to redesign a course has been raised. There is some sense that shortening the time between commencing the project and delivering the first course might have placed needed pressure on both faculty and developers.

Technology Issues. Three aspects of the technology components of the project were raised: First, the opportunity to use the HyperCard technology is appealing, fun, something different and, thus, interesting; on the other hand, having to learn a new

piece of software (and, for some, a new computing environment) introduces delays and some difficulty into the project.

Second, like the faculty participants themselves, administrators feel that increased access to computers and software will be a source of additional motivation for faculty involvement. In an ideal environment, faculty would have access from their own offices and not have to use the project site or computing lab.

Third, the college is excited about use of the Internet for access to its programs. Expanded knowledge and use of the Internet will benefit existing students even when they are taking courses in traditional modes. For example, a couple of Weekend College courses and instructors are already using electronic mail and computer conferencing facilities via the Internet to interact with students during the weeks they are not on campus.

Institutional and Political Issues. As noted earlier, the stability, strength and credibility of the Weekend College program have been key in faculty acceptance of and involvement with the project. Incorporation of the project's activities into the ongoing operation of Weekend College is judged to be an easy transition when the time comes. This may be tempered when information about costs and benefits becomes available..

Although incorporation into Weekend College seems the most likely scenario, if the project is deemed successful and financially viable, it might also be placed elsewhere in the organization. This is particularly likely if the courses seem attractive to and are used by day-school students.

A larger issue with which the institution is grappling is the question of the future--the college's institutional culture and its staff and student values. St. Catherine's has been a traditional, undergraduate, liberal arts college; but, with changing enrollment patterns, the success of Weekend College, and the potential success of the New Pathways component, about half of the student body no longer fits the traditional student profile.

Cost/Benefit Issues. Because students are not yet registered for the new courses, it is not possible to assess costs or benefits on a per course or per student basis. However, if the college is successful in retaining current students or attracting new students as a result of the project, the potential for an attractive cost-to-benefit ratio is increased.

Administrators are interested in whether sufficient numbers of students will enroll and whether they will subsequently enroll in other courses offered in the same mode.

Is there potential for students to complete all or most course work utilizing this format?

Project staff and administrators are concerned about how to fund course development work beyond the expiration of the grant. They are seeking additional outside funding and are eagerly awaiting availability of cost-benefit analyses to inform their planning.

Pedagogical and Student Support Issues. As noted earlier, the issue of whether or not financial aid to distant learners will be allowed is one that concerns the college's administration. Likewise, whether employers will find the degree program (Information Management) valuable enough to underwrite student costs for their employees who enroll remains a question.

There is some concern about student contact hours and how the HyperCard, non-classroom delivery will affect the amount of time students invest in completing a course.

Greatest Gains for the Institution. Both internal and external aspects were mentioned as institutional gains. For the college, the project is viewed as a means to challenge and reinvigorate the faculty. Outside, the New Pathways project enhances the reputation of the institution in the same way establishing the Weekend College did more than a decade ago.

The institution will also profit if the project allows it to retain students who might otherwise have dropped out before completing degrees or to recruit students who might have gone elsewhere or not worked on a degree. Attracting students from outside the state, while not a goal of the project, is a desirable outcome.

Within the college's local community the project has public relations value, but the national attention it has brought is also welcome.

FIRST VISIT SUMMARY

General Analysis of Interviews.

How well are project goals being addressed? The project seems to be progressing toward the project goals. Seven courses are under development; formative evaluations of the courses will be conducted with representative students in the spring; and marketing strategies are progressing and should be in place to secure fall 1992 enrollments. The project is actually ahead of schedule on implementation of the faculty development components of the project plan. Securing the cooperation of the additional faculty needed for future course development presents no difficulty.

What are problem areas related to the success of the project? If there is an area which needs additional attention it is the identifying and nurturing remote delivery sites. Since such sites may not be needed, it is understandable that relatively little effort is being devoted to this activity at this time.

Do top administrators seem to have a good understanding of the project? The project proposal was developed with the interest and backing of the institution's administration. There is strong, ongoing support for the project. This results in part from the initial involvement of key administrators, but is also due to the small scale of the institution and the emphasis on community.

What are the factors that will affect continuation of the project? Participation by targeted students will encourage continuation of effort beyond expiration of the Annenberg/CPB grant. Faculty satisfaction with the efficacy of the delivery system and software will also be key. That the project is already well integrated into the fabric of the day-to-day college bodes well for continuation. Likewise, the use of regular faculty should be a positive factor.

How will this project have an effect on other institutions developing similar projects? Within the state and nationally among similar institutions, St. Catherine's opening of Weekend College was observed and imitated. With this example and the solid reputation which the college has developed as a result, it seems likely that visibility for the New Pathways project will be high, and if successful, the project once again will be copied.

Because the project does not rely on esoteric delivery software and/or systems, nor does it require development of a large infrastructure outside of the institution's control, the potential for replication is great.

A soon-to-be-released report on policy options for higher education in Minnesota is expected to support the creation of regional consortia for the delivery of higher education programs. This, as a result, will likely encourage the development of additional distance education options. The outcomes of the project at St. Catherine's will gain even greater attention in the state if these recommendations are advanced.

Summary of Evaluation Outcomes

With instructional modules still under development it is too early to comment on the effectiveness of either their design or delivery. Organizational development and concomitant creation of a supporting infrastructure are well underway. As noted in the sections addressing intra-institutional linkages and policies, the college is strongly positioned to achieve success in the project and successfully incorporate the new modes of delivery into established structures and programs.

Chapter 4

COMMUNITY COLLEGE OF MAINE

THE UNIVERSITY OF MAINE AT AUGUSTA

Ellen D. Wagner
Western Cooperative for Educational Telecommunications
WICHE

GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. The problems of access to higher educational opportunities for the citizens of Maine because of constraints of geography, cost, and time have been recognized by Maine educators for some time. As early as 1981, an ad hoc committee of the Board of Trustees of the University of Maine System called for the development of a community college concept which would improve educational access, with particular attention paid to the needs of the "older, part-time and commuter students."

In 1985, the Board charged the President of the University of Maine at Augusta (UMA) with the responsibility for developing a plan to address these educational access needs. The solution emerged as the Community College of Maine (CCM) Plan. On November 16, 1987, the Board of Trustees of the University of Maine System unanimously approved a proposal calling for the creation of a statewide one-way video, two-way audio instructional television network, the technological basis for the Community College of Maine. On September 5, 1989, the Community College of Maine began transmitting 36 courses to over 47 locations throughout the State of Maine. By the fall of 1991, Community College of Maine courses were being broadcast to 77 sites.

University of Maine System institutions participating in the Community College of Maine project are (in order of service regions) the University of Maine at Fort Kent, the University of Maine at Presque Isle, the University of Maine at Machias, the University of Maine (Orono), the University of Maine at Farmington, the University of Maine at Augusta, and the University of Southern Maine (Portland).

These seven campuses are connected by means of a fiber optic DS3 line allowing them to originate and receive programming from any of the other campuses. Each of these campus sites is responsible for managing a particular region; in turn, each region is served by University center offices. These centers provide students with instructional, administrative, and student support services and function as the

campus presence in the off-campus environment. There are currently 12 Community College of Maine University centers located across the state. The centers serve as the Community College of Maine's point of contact for sites receiving instruction via the Instructional Television Fixed Station (ITFS) network. These sites are usually located in high schools, but sites are also located in such places as the Maine Department of Education, the Chancellor's Office of the University of Maine System, the Maine Public Broadcasting Network, Maine's six technical colleges, Augusta Mental Health Institute, Bangor Mental Health Institute, and the GTE facility located in Waldoboro.

A list of regions, centers and the number of sites served follows:

Region 1 (University of Maine at Fort Kent)

- One center, at the University of Maine at Fort Kent.
- Three sites.

Region 2 (University of Maine at Presque Isle)

- Two centers, at Loring Air Force Base, and Houlton.
- Eight sites (including the Northern Maine Technical College).

Region 3 (University of Maine at Machias)

- One center, at Calais.
- Five sites (including the Washington County Technical College).

Region 4 (University of Maine [Orono])

- Two centers, at East Millinocket, and Ellsworth.
- Fourteen sites (including Eastern Maine Technical College, the Maine Maritime Academy, and the Maine Public Broadcasting Network).

Region 5 (University of Maine at Augusta)

- Four centers, at Rumford/Mexico, Lewiston/Auburn College, Bath/Brunswick, and Thomaston.
- Twenty sites (including the Kennebec Valley Technical College, and the Central Maine Technical College). The University of Maine at

Farmington has turned over its administrative responsibilities to the University of Maine at Augusta.

Region 6 (University of Southern Maine [Portland])

- Two centers, at Saco and Sanford. Region 6 also provides service to Lewiston/Auburn College (also served by Region 5).
- Six sites (including the Southern Maine Technical College).

Instruction is delivered at the centers and sites via point-to-point microwave and ITFS. One-way video transmission is augmented by a return audio carried over standard telephone lines.

Funding for this project has come from a variety of sources: legislatively appropriated funding of $3.6 million of base budget funding from the State of Maine; a $3.5 million Title III grant (to further construction of the fiber optic lines connecting the six campuses and ITFS capacity among the campuses, centers and sites); tuition dollars to support the Community College of Maine's annual operating budget; and the Annenberg/CPB New Pathways grant of approximately $300,000 to help improve academic and support services for distance learners and to support faculty and staff working with distant students.

In addition to being used for direct instruction, the Community College of Maine ITV network has been used by a number of non-instructional users for workshops, teleconferences, and public meetings. These users include such diverse groups as AIDS support groups, the Associated Press, the American Lung Association, Maine Child Development Services, the Department of Education, Cooperative Extension Services, the Department of Conservation, the Department of Economic and Community Development, the Department of Labor, the Health Policy Advisory Council, the Maine Independent Living Center, the Maine Federation of Women's Clubs, the New England Telephone Company, the Maine Waste Management Agency, the Maine Law Review Class reunion, the Maine Legislature, Lotto America, and others.

Goals of the Project. This New Pathways program has been designed to support, expand and improve the Community College of Maine activities which have been underway since the fall of 1989. The primary goals of the New Pathways project are to support curriculum revision, student support services improvements, and faculty and staff training efforts. To this end, the Community College of Maine New Pathways efforts specifically call for

- Offering courses to satisfy requirements for the Associate's Arts degree in Liberal Arts. This will include courses which require more interactive styles of

teaching and learning, such as a laboratory science requirement, composition, communication, and advanced mathematics;

- Adding computer conferencing, electronic mail and fax machines to support interactive styles of teaching and learning;

- Placing more resources at off-campus centers and sites, including laboratory equipment, enhanced library services, and a variety of electronic equipment such as videodisc players;

- Developing strategies to improve faculty and staff proficiencies for teaching adults and disabled students using instructional technologies.

Four new courses will be developed to incorporate greater instructional interactivity, and 16 courses will be redesigned to make them more interactive. Courses being offered over the statewide ITV System include a wide variety of undergraduate courses typical of a community college curriculum, including Art Appreciation, a variety of U.S. and World History classes, Human Biology, Accounting, Introduction to Real Estate, Principles of Management, Small Business Marketing, Hazardous and Solid Waste Engineering, Foundations of Justice, Human Ecology in the Future, Communications Engineering, Introduction to Literature, Modern Literature, Principles of Multicultural Education, Domestic Relations, Human Development, Environmental Politics, Normal Nutrition, Basic Arithmetic, Parenting the Young Child, Case Management, Sociology of Death, and so forth.

Approaches to Marketing. The Community College of Maine concept was designed to bring educational opportunities to the citizens of the state of Maine, particularly to part-time adult students. Marketing efforts have been directed at Maine citizens through mass media. Both the program concept and specific course offering are promoted through electronic and print media, including direct mailings. Television advertisements have been broadcast from stations in Portland, Bangor and Presque Isle. Advertisements have appeared in newspapers around the state; local campus newspapers have also promoted the community based course delivery option. The Community College of Maine initiative is promoted through the University of Maine's Continuing Education insert which is distributed in the weekend edition of the Bangor Daily News and directly mailed to 80,000 households. The CCM Newsletter is mailed directly to the University of Maine System faculty, staff, and administrators, and to legislators, educators and individuals involved in distance education efforts around the country. Brochures have been widely distributed throughout Maine. According to a 1991 Evaluation report of the University of Southern Maine Evaluation and Testing Center, students report that up to 51 percent of the registered students heard about their courses from the brochures.

An internal marketing effort has looked at ways of better promoting the student services, library services and faculty support/instructional design services. These are to be enhanced as a result of the New Pathways funding. These internal marketing efforts have resulted during the past year from several meetings of student service providers and numerous faculty development workshops offered both on campus and via ITV, sponsored by the Center for Distance Education and the Office of Off-campus Education at the University of Maine at Augusta.

People Involved in the Project. Most of the staff participating in the New Pathways Project and the Community College of Maine initiative are based at the University of Maine at Augusta. Staff members responsible for both initiatives include the President, the Executive Director of Distance Education, the Director of the Center for Distance Education, the Director of Distance Education Technologies, the Director and Assistant Director of Off-campus Education, and the Coordinator of Off-campus Library Services. The Provost, Deans and Department Chairs of the University of Maine at Augusta campus oversee instructional appropriateness, faculty teaching assignment and evaluation, and other academic concerns.

Faculty involved in the Community College of Maine and the New Pathways efforts come from the regular faculty of the campuses originating the course. As noted previously, many courses originate from the University of Maine at Augusta campus. Consequently, a higher percentage of University of Maine at Augusta faculty are involved in the Community College of Maine initiative than are faculty from other System campuses. However, the recent New Pathways mini-grants will support course development and revision at six campuses, and faculty from all seven campuses are providing instruction.

Each University center is staffed by a director responsible for managing distant as well as on-site learning experiences. Each site is managed by a part-time staff person.

Each of the campuses has faculty, staff, and administrators in academic affairs, student services, registration and scheduling, and library services who manage the Community College of Maine students as part of their regular duties. The activities of the System-wide Academic Council and its role in selecting faculty to teach on the system and courses for ITV delivery will be discussed in a later section of this report.

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Support. Because it is so difficult to separate the New Pathways initiatives from the rest of the Community College of Maine project, it is equally difficult to separate members of the New Pathways-specific administration, faculty, and staff from the other activities associated with the Community College of Maine. Furthermore, according to several of the individuals interviewed for this evaluation report, the University of Maine at Augusta staff have seen their positions evolve in ways which make it impossible to separate distance learning activities from traditional ("pre-Community College of Maine") duties. Top administrative commitment is credited as a critical variable in realizing the Community College of Maine concept. The University of Maine at Augusta has seen itself placed in a national leadership role as a result of developing the Community College of Maine; it has become as much a mission of the institution as the delivery of on-site instruction.

The Director of the Center for Distance Education position was funded directly (in part) from the New Pathways initiative; because of internal funding contingencies this person is also involved with campus computing services. The New Pathways initiative also funds an instructional designer and a staff administrator in the Center for Distance Education.

The New Pathways funding underwrites a number of faculty mini-grants to design or redesign 19 courses for distance delivery: 7 at the University of Maine at Augusta, 4 at the University of Maine (Orono), 3 at the University of Maine at Farmington, 2 at the University of Maine at Presque Isle, 2 at the University of Maine at Machias, and 1 at the University of Maine at Fort Kent.

In order to ensure the integration of distance learning courses within the current academic/administrative structure, the University of Maine's System Trustees have created the Academic Council, an advising and planning group composed of one person from each of the System campuses. The council is chaired by the Provost of the University of Maine at Augusta, and reports to the University of Maine at Augusta President. The council is responsible for scheduling state ITV network courses, for ITV course selection, and for making decisions about faculty selection and teaching assignments. The council also reviews and develops Community College of Maine policies and procedures. The Faculty Advisory Council advises the Academic Council on issues and concerns of the System faculty.

Student Support Structures. The New Pathways grant funding underwrites a number of student support staff mini-grants. Students are directly served by the Community College of Maine's university centers located around the state. These centers all work to implement the program recommendations developed by the Office

of the Director of Off-campus Education, which is responsible for directing and guiding the provision of student services for the Community College of Maine. The Off-campus Education Office at the University of Maine at Augusta consists of approximately 30 people located primarily at off-campus centers in Region 5. The Office of Off-campus Education coordinates approximately 100 Community College of Maine student service and support people in the other campuses' regions.

Student services provided are registration, academic advising, career counseling, testing and assessment, admissions, financial aid, and a number of workshops including study skills, time management, and resume writing. A toll-free number is available for students, faculty, and others wanting information about courses and services. Recognizing that student services are the lifeblood of any distance education program, the Community College of Maine project has planned to significantly improve student services through their New Pathways funding. Student service providers at centers and campuses have met to identify the most pressing needs for student service improvements, and to develop strategies for meeting those needs. Student service providers agree that student service improvements enabled through the New Pathways project should emphasize academic advising, assessment and testing for student placement, and improved student orientation services. Additional services recommended for improvement focus on codification of inter-institutional and Systemwide policies and procedures affecting registration, credit transfer, credit compatibility across the entire System, scheduling consistencies and student financial aid services. Coordinating the policies and procedures of seven higher educational institutions is daunting; yet efforts to identify problems and to develop solutions for addressing these problems are very much a part of the current operational plans. Of particular concern have been add/drop procedures, disbursement of financial aid to full-time students taking courses from more than one institution in a single term (they look like part-time students to both institutions), and clarification of intra-system residency requirements.

Within advising, concerns include ways of removing bureaucratic roadblocks which impede student progress (such as admissions, enrollment, registration, and accounting processes), things that impact student retention (such as orientation services, placement, testing, campus-based parking services, technology proficiency training, and study skills consulting and assistance). Student service providers throughout the System agree that they need both to develop new services and to do a better job of marketing available student services.

The center directors and their staffs are the field representatives of the Community College of Maine project administration and frequently serve as an interface between teachers and students. The issues described above concern these center staffs and the site coordinators because students bring their complaints and concerns to their

offices. These issues can be especially frustrating for the center staff who must administer the sometimes incompatible policies and procedures of each regional campus.

Both staff and faculty are concerned with the provision of library services for off-campus students. The Community College of Maine has placed significant energy in providing off-campus students with high quality library services. This includes both inter-library loan services and online library catalog access (through the URSUS system) to over 600,000 titles and 1,000,000 volumes of books, journals, maps, documents and audio visual materials of the entire University of Maine System. Infotrac provides online users with information about periodicals available at the University of Maine System libraries and of public libraries in Maine. Search of periodic literature is also available through CARL (the Colorado Association of Research Libraries). A toll-free reference number is available to provide off-campus library patrons with access to librarians working on campus at the University of Maine at Augusta. Bibliographic and research instruction is provided via the ITV System for off-campus students by the University of Maine at Augusta library staff. During the period from July 1, 1990 to February 28, 1991, over 3235 requests for library services assistance were made by off-campus library users.

Faculty Support Issues. These issues will be described in greater detail in the Faculty Reactions to the Project section of this report. The issues related to faculty support include compensation for teaching distance courses, evaluative criteria for promotion and tenure, faculty selection for teaching on the ITV system, and course selection.

Staff Support Issues. Primary staff support issues include those already identified and discussed in the student support section. Within the Center for Distance Education there is a concern that insufficient time has been allocated to accomplish planned work; decisions to expand the number of technologies for course delivery and instructional support raise questions about whether the instructional design and development staff is large enough.

Cost Factors. As would be expected in a project of this magnitude, cost factors involved in the Community College of Maine project in general and specifically with the New Pathways project are complex. While staff development, instructional design, and student support activities are very specifically associated with the New Pathways components of the Community College of Maine project, they represent the implementation of improved services which had been identified, anticipated and accommodated within the long standing Community College of Maine plan for developing and maintaining the delivery of courses via ITV. All of the costs of the New Pathways Project are difficult to isolate from costs of the Community College of

Maine project, including costs associated with all of the following: (1) the statewide fiber optic lease; (2) the interactive studio classrooms at seven campus locations; (3) the establishment and maintenance of multiple ITFS microwave towers; (4) salaries and benefits for all staff responsible for the technical, student support and instructional activities; (5) the development of statewide online library services, and so forth.

FACULTY REACTION TO THE PROJECT

Basis for Information. One faculty member was interviewed during the October 1991 evaluation site visit. However, additional faculty input was derived from data collected and compiled by the University of Southern Maine Testing and Assessment Center, the agency contracted by the Community College of Maine to evaluate the efficacy of the Community College of Maine project. The Testing and Evaluation Center has conducted over ten evaluation reports, which include (1) summaries of the perceptions of faculty teaching on the ITV system for each term the System has been operational; (2) a summary of the results of each term of operation; (3) perceptions of returning faculty; and (4) perceptions of first-time faculty. Evaluation data have been collected from the onset of the Community College of Maine project to assess (1) comparisons of interactive television courses with live equivalent courses; (2) returning faculty, faculty retention; (3) faculty satisfaction; (4) student achievement; and (5) student satisfaction. Furthermore, faculty issues were addressed by each person interviewed for this evaluation report; there is great consistency among the interviewees regarding the faculty issues reported below.

The faculty member interviewed for this evaluation is a member of the Business faculty, and has been a full-time faculty member of the University of Maine at Augusta for five years. He has been teaching on the ITV system since its inception, and has taught six courses on the system as of fall 1992.

Course Development Issues. Until New Pathways funding became available, faculty were expected to take care of their own course design and development issues in consultation with the office of the Director of Distance Education Technologies. Staff consultation emphasized techniques for re-configuring courses, materials and instructional methods for broadcast television transmission. The Office of Distance Education Technology was involved in getting the control room operator, or "switcher," in direct contact with the instructor to provide basic consulting services in these regards. In general, this input tended to be technical rather than instructional, given the expertise of the studio and production staff. Also, since the instructional delivery of distance courses was accomplished solely through the ITV system (along with text/syllabus distribution available through the University centers and sites), the

need for course development support was perceived to be less pressing than was the need to make certain that the technology used for course delivery was reliable, and that courses were redesigned to deal with the technical contingencies associated with teaching on television. Now, the New Pathways funding has enabled the development of a unit designed to assist faculty with distance education course development and delivery. The new emphasis will be on educational matters rather than technical.

According to the faculty member interviewed for this evaluation, course design efforts were previously based upon student reactions and faculty perception of what was working (and what was not) rather than upon formal knowledge of course design principles. The New Pathways funding has made instructional design support available for all faculty teaching on the ITV system. (However, Annenberg/CPB mini-grant recipients have priority for instructional design support during busy time periods.)

Several other issues are mentioned by faculty:

- Collegiality--if one is supportive of ITV there is no problem, but if not, one might be seen as "bucking the system."

- There is a tendency to exercise a greater degree of "self-censorship," caution, in a networked classroom, given the reach of the ITV network to all corners of the state; this might reduce some color and quality found in a traditional classroom environment.

- Time has also emerged as a topic of concern; the amount of time needed to develop a course is somewhat greater than that needed in preparing for traditional classroom. More importantly, it takes more time to adequately deal with the number of students who can be reached per course on a statewide network. (For example, the interviewed faculty member noted that it takes him up to an hour simply to open the mail from students mailing in their assignments.) It also takes more time to establish the rapport with distant students--more effort is placed upon learning about the people in the class, their interests, their personal lives and so forth. Most faculty teach distant courses in addition to their on-campus load. Even though faculty are currently compensated at a two-course rate, the faculty load is described as being too high for what is being paid; specifically, the remark was made that given current teaching loads no amount of money can really buy the time needed to do as good a job as one might want to do.

Technology Issues. Faculty approval of the Community College of Maine technology system has improved each semester, indicating that the University of Maine at Augusta and the University of Maine System have responded to faculty concerns about the installed technologies.

To date, the technologies employed by faculty for distant course delivery have been limited to the ITV system and to the online services available for library support services. Electronic mail and fax support are scheduled for implementation in early 1992. A new telephone system was installed in mid-1991, accommodating voice-mail for teachers and students and facilitating electronic mail access.

There has been little interest to date in employing multiple technologies for distance course delivery. Nevertheless, more faculty are looking at ways of enhancing the interactive potentials of multiple-technology course delivery (e.g., using combinations of electronic mail for online conferences and for messages for students and faculty, computer-based instructional modules to simulate experiences discussed in the class presentations, and on call videotapes for additional enrichment examples). What seems to make more difference than the technology itself is class preparation--being prepared, organized, and having technical support readily available at all times.

Pedagogical Issues. The faculty member interviewed for this evaluation report indicated that he feels as though he knows the distant students better than the on-campus students--because he reportedly makes an effort to know them better. Student assessment is more challenging because the feedback mechanism of observing students is not available; however, feedback is obtained through other means, such as performance on class assignments, student/teacher conferences, letters, and telephone conversations.

Students have made faculty aware that the distance between the teacher and students allows students to overcome their own interpersonal concerns associated with returning to school.

According to faculty, performance of the non-traditional and traditional students is indistinguishable. Results of comparisons of student GPA reported in the semester end evaluation reports conducted by the Testing and Assessment Center of the University of Southern Maine have shown no statistically significant difference between on-campus and off-campus student performance.

Additional/Summary Comments. Primary concerns identified by University of Maine at Augusta faculty and reiterated in discussions with Community College of Maine staff and administrators include the following:

- Compensation: faculty teaching ITV courses are compensated in a two-to-one ratio; they teach one ITV course and get credit for two. In addition, they are compensated $500 for each ITV course in recognition of the necessity for greater planning, organization and creativity need in the delivery of courses to ITV students. This compensation/incentive plan continues to be reviewed, because some feel that because the average ITV class size is 117 there should be greater compensation.

- Faculty selection/course selection: current faculty and course selection decisions are made by the Community College of Maine Academic Council. Course selection decisions are tending to reflect student demand, so courses are now being selected and faculty assigned to teach based upon recommendations of the department chair, the dean, and finally by the Academic Council. Faculty want a larger role in the course selection process.

- Staff support (correspondence, grading, record-keeping): given the growth of the Community College of Maine System in the past three years, it is getting more difficult to keep up with the housekeeping tasks associated with teaching at a distance.

STUDENT REACTIONS TO THE PROJECT

Basis for Information. This information comes from interviews with four students enrolled in SOSA 212--Case Management, which originated from the University of Maine at Augusta campus and is being received at multiple sites around the state of Maine. The students interviewed were taking this class at the Thomaston Center. All students interviewed had taken other courses on the ITV system prior to this one; most had also taken courses in the traditional, single classroom format; one student regularly takes ITV courses and on-site courses at the same time; and at least one student had been taking ITV courses at other Community College of Maine centers if they were not available at the center nearest her home.

Motivational Issues. These students were very positive about their ITV experiences. Two students noted that they would likely have never taken a traditional class on campus. One student wanted to prepare for her second career without interfering with her first job as a homemaker. Motivational factors noted by other students included avoiding the fear of having to walk into a traditional class of "young kids" on campus. Interviewees feel as though they have a great degree of control over their learning experiences, both as a result of the focus provided by the television cameras and because of the option of "re-viewing" course presentations. The ability to review tapes from classes missed because of bad weather or other personal reasons

is also seen as an advantage. Convenience (that is, having the courses available within a reasonable drive of one's home community) and access (where a greater number of courses are now available at the community sites than ever could have been made available using the traditional traveling-teacher model of off-campus instruction) are critical.

Students are very favorable about the quality of the relationships among the site-based student cohort groups. They all mentioned that it is easier to get to know other students in a smaller group setting, especially a setting in which the teacher does not dominate the classroom environment. All students reported that the student-to-student interaction encouraged through this site-based instructional model has a positive influence upon their academic achievement.

Technology Issues. None of the students see the technology presenting a barrier. The option of reviewing tapes of class sessions is a definite advantage over traditionally delivered courses. The telephone connection with the professor is a quite adequate link for responding to the instructor, especially since voice-mail is now available for leaving messages.

The students noted that the success of an ITV class is influenced by the technical support provided the faculty member, including the efficiency with which telephone calls are forwarded to the studio, the types of camera shots being selected by the production technician (the switcher), and the quality of the signals being transmitted over the ITV network.

Technologies used by the students in this particular class included the ITV system, the telephone, the URSUS library system, and Infotrac. Students reported that this is a fairly typical configuration for other classes they have taken on the system. Students feel that addition of voice-mail for students and teachers enabled by the new telephone system will be useful, making it easier to get in touch with their teachers.

Pedagogical and Evaluation Issues. The students remarked that some instructors seem to be far more effective than others when teaching on the system, and that first-time instructors seem to have the hardest time. However, they also noted that the instructors who are most open to input and feedback from students seem to make the greatest improvements over the shortest amount of time. Students appreciate faculty who give them time for group work, who ask questions to encourage student participation in class discussion, and who actively engage the students at multiple sites. Since all classes are held with a live student audience while being sent out over the system, the interviewees remarked that the ability of instructors to engage both the distant and the on-site students is an attribute they appreciate.

Student reaction to the "TV personality" teacher style of delivery was mixed. They approve of a smooth delivery style but are less favorable about teachers who adopt behaviors more commonly associated with TV talk show hosts.

When asked about their perceptions of how well they learned from their ITV courses, all students believed that they learned at least as well as they would have (or had) in traditional, face-to-face classrooms. Several students say they learn more over ITV because of the care taken to present the course materials in meaningful, efficient ways. They appreciate the opportunity to exercise greater control over their own learning behaviors than they can in a traditional classroom. All students were very positive about the cohort group impact upon their learning.

Special Support Issues. Students report a high degree of satisfaction with the services provided by the staff members of the Thomaston Center. This includes both the standard registration and advising support and the willingness of the center staff to run interference with the campus offices if needed and to serve as an interface to the institution.

Additional/Summary Comments. The students are uniformly positive about their ITV experiences. Perhaps the only complaint raised by students is that they want more courses to be available over the ITV system. Students expressed some frustration that they are not able to complete their entire AA degree over ITV, although they also recognized that the system is still fairly new and that more courses are being added. The concern for course access goes beyond just the interest in increasing the number of courses formatted for delivery over the ITV system; students want to see increased access to courses being broadcast over the system to which various centers do not subscribe in a given semester. (Subscription is a function of the site's enrollment demands, so the student complaints are somewhat misdirected.) They make the point that once a system like this becomes operational, it is imperative that the courses selected for distant delivery have continuity.

ADMINISTRATORS' REACTIONS TO THE PROJECT

Basis for Information. Administrators interviewed for this evaluation included the Executive Director of Distance Education for the University of Maine at Augusta, the Provost of the University of Maine at Augusta, the Director of the University of Maine at Augusta Center for Distance Education, the Director of Distance Education Technologies, the Director of Off-campus Education, and the Coordinator of Off-Campus Library Services. Additional information has been obtained from the 1991 Community College of Maine Annual Report, from the September 13th article describing the Community College of Maine concept which appeared on the front

page of the Wall Street Journal, and from remarks and a promotional videotape presented by the President of the University of Maine at Augusta at the US Distance Learning Association Policy Forum in Burlington, Vermont, July 10, 1991.

Faculty Related Issues. The administrators interviewed for this evaluation noted that issues of faculty compensation, of time for course development and course management, of course selection, and of faculty selection and faculty evaluation have emerged as topics of discussion among the Deans and Department Chairs. The notion of a course-preparation stipend for ITV faculty will continue to generate discussion; if, after all, the Community College of Maine is seen as the model for the future of higher education access, then the cost of incentives may become problematic. However, for the time being it is still necessary to provide faculty with an additional perk for taking on the somewhat challenging tasks of teaching on television and of developing courses for ITV delivery. The University of Maine at Augusta Provost noted that this may emerge as a collective bargaining issue.

Technology Issues. None of those interviewed consider the technology a source for ongoing concern. The reliability issues associated with initial network construction have been actively addressed, so that initial complaints about the ITV system operation have fallen off dramatically. Interviewees noted that the ITV technology issues are now being supplanted by organizational concerns. According to the Executive Director of Distance Education, ITV was selected as the medium of transmission because it is seen as the transmission vehicle most likely to be accepted by faculty. Unlike computer conferencing and other computer applications which require a relatively higher degree of operational and technological proficiency, the ITV and its technical support staff enable the faculty to focus on teaching and to be less concerned with the operation of the equipment. As faculty become increasingly familiar with what ITV can do for them, they are becoming increasingly interested in using other technologies to support the adjunctive delivery of course content and to enhance the interaction between the teachers and students and among students themselves.

Institutional and Policy Issues. There is consensus that the primary issues confronting the Community College of Maine are related to organizational transformation. The University of Maine at Augusta Provost says that no traditional organization is equipped to deal with the changes brought about by technological integration. People are busier because they have new tasks added to their workload without having any of the traditional tasks removed. The distance education function of the community colleges may present another transformation to higher education, similar to the one brought about by the community college concept itself. The Community College of Maine concept has provided the University of Maine at Augusta with a unique opportunity to assume leadership in Maine's higher education

picture; it has also provided an opportunity for the University of Maine at Augusta to assume a national leadership role in distance education.

The primary policy and procedure issues arise from procedural inconsistencies across the multiple campuses involved in the project. (These issues are discussed at length in the Support Services section of this report.) However, to have reached a point where multi-institutional inconsistencies are being noticed indicates that the project has developed beyond the point where technology-based issues are the major concern.

Cost/Benefit Issues. None of those interviewed saw cost/benefit justification as a significant issue. Although no formulas exist to show the return on investment in the ITV system and its related support structures, the consensus is that both the tangible and intangible benefits of providing access to instructional opportunities to the citizens of Maine make this a worthy investment in Maine's future. Of course, several suggested that it would be useful to have some hard data on cost/benefit available when the Maine Legislature revisits the project to consider continued or additional appropriations. Others observed that cost/benefit considerations are very important to other organizations as they consider whether or not to get involved in a distance education initiative. Once the decision to establish a technological backbone is made, and the system is up and running, the need to justify the technology is replaced by the need to address management concerns of job design, staffing, and work design.

Pedagogical and Student Support Issues. Interviewees suggest that the Community College of Maine concept and the ITV system in particular have helped to serve as a catalyst for addressing instructional inadequacies which existed before the advent of the system. They suggested that distance education is a catalyst for doing a better job, because the technology makes it easier to address student's individual needs. The agreement and support of the administrators interviewed, from the Provost down, indicate the degree to which the University of Maine at Augusta has made a commitment to the notion of distance education in general, and specifically to the Community College of Maine. Those still maintaining reservations about the efficacy of distance education have either become harder to find, or were not available while the interviews were being conducted.

FIRST VISIT SUMMARY

General Analysis of Interviews

How well are the goals being addressed in actual practice? The goals of New Pathways project are very much the focus of current Community College of Maine activities. The Center for Distance Education has been fully staffed; the mini-grant competition has taken place, with faculty and courses selected for developmental support; the student services providers at system campuses and centers have been developing strategies to provide more effective placement, orientation, and assessment services; the technological enhancements to the ITV network are in progress; and the efficacy of all system enhancements continues to be evaluated.

What, if any, are the problem areas for the success of the project? The primary problems which may impact the New Pathways initiatives will most likely arise from funding contingencies associated with legislative appropriations. The funding of the New Pathways initiative is a very small piece of the Community College of Maine's overall operating budget. State funding for the Community College of Maine continues to be revisited as tax dollars to support non-essential programs become increasingly scarce. If state funding is reduced, it is very likely that the New Pathways initiatives will be impacted.

Do top administrators seem to have a good understanding of the project? The administration of the University of Maine at Augusta has made a significant institutional commitment to the Community College of Maine. Their collective commitment illustrates the importance of getting top administrators involved in change processes involving technology and educational access improvements. The integration of the ITV system has changed staffing configurations, policies, procedures, and work design. It is critical to work through these changes at all institutional levels, but support from top management makes the change process less onerous.

At this point in the project, what do you think will encourage or discourage the continuation of this project after the Annenberg/CPB funding ends? The New Pathways project represents a small but significant part of the Community College of Maine's ongoing operations. The staff and faculty interviewed for this project all acknowledge the importance of staff development, instructional design, and student services, but note that these issues were less critical when there was no reliable technology system in place to carry courses and programs over distances. Having established the technological system for instructional distribution, and having established an institutional expectation for distance course delivery, the enhancements

provided through the New Pathways initiative are timely and necessary to the current Community College of Maine agenda. In this second phase of development, improved student services, faculty and staff development, and instructional design services are more likely to be institutionalized. They are being developed within the context of a program perceived as successful by its faculty, students, staff and administration.

How will this project have an effect on the likelihood of other institutions developing similar projects? The statewide nature of the Community College of Maine is already being replicated in a number of states around the country. The multi-institutional interfaces which made the Community College of Maine operational are challenging these states. The solutions generated by the Community College of Maine are very likely to provide a set of guidelines for working through technological and administrative interfaces. They will also provide models for policies and procedures, for multi-institutional articulation agreements, for student services, for library services which make use of facilities and resources of more than one campus, and for staff and faculty development.

Chapter 5

COMMUNITY LEARNING NETWORK

INDIANA UNIVERSITY-PURDUE UNIVERSITY, AT INDIANAPOLIS

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GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. "Indiana University-Purdue University at Indianapolis (IUPUI) is an urban university of 27,000 students serving a metropolitan area of approximately 1.5 million people. Established in 1969, IUPUI concentrated its resources on graduate professional education in the early years of its development. For the past five years, however, the emphasis has shifted to undergraduate education and to access for Hoosiers who have not taken advantage of the university-level educational programs available in the very center of Indianapolis." ("In 1989, less than 15 percent of the adult population in Indiana held baccalaureate or higher degrees.") "The average age of IUPUI undergraduates is 26; approximately 60 percent attend part time." ("Community Learning Network," [IUPUI Grant Proposal], May 1990.)

IUPUI has made major efforts in recent years to improve the likelihood that nontraditional students will be recruited into the university and have successful learning experiences that will result eventually in degrees. These efforts include an Undergraduate Education Center, staffed with counselors who can find and help students who with the right support are likely to succeed in college; the Weekend College; and the Learn and Shop programs. These programs demonstrate the university's commitment to innovation in seeking out, matriculating, and supporting students from under-served populations. The New Pathways project is yet another attempt by IUPUI to innovate delivery systems that will succeed in providing educational services to traditionally disenfranchised students.

Goals of the Project. The following goal statement is a paraphrase of six objectives stated in the grant proposal:

To find baccalaureate students previously discouraged from participation in higher education by social and economic barriers, and to enable their success by remotely delivering to the students' neighborhood facilities revitalized curriculum materials in five core-curriculum courses; this educational experience will develop students'

confidence and self-motivation as well as their skills in chemistry, mathematics, history,literature, and information resources and research methods, so the students will have the ability to choose to continue their education. These goals will be accomplished by engaging the most effective, full-time faculty (teaching on campus and off campus simultaneously), by redesigning and revitalizing five core curriculum courses and preparing them for distance presentation, and by creating a learning community for off-campus students. A secondary goal is to design this project so that the program will continue after the project funding is depleted.

It is worth noting that the technologies and their mixes are not mentioned in the project objectives; however, the use of technology is a large part of the strategy for accomplishing the above ambitious goals. IUPUI points out that Lecture Hall 101 has been recognized as one of perhaps the 10 most sophisticated and complete electronic learning environments in the nation. This lecture facility is equipped to enable a professor to deliver course material to a live class of 20 to 430 students, and simultaneously to remote sites. The classroom integrates all common instructional media including the following: overhead projections; IBM, Apple, and NeXT computers and the ability to project computer text, graphics, and simulations; laboratory resources such as microscopes and a demonstration bench with means of projecting events onto a larger-than-life screen; and multiple remotely operated cameras for videotaping the events of the classroom. The live classroom activity can be delivered to sites on campus and locally through cable systems, and statewide through the Indiana Higher Education Training System (IHETS). An ITFS (Instructional Television Fixed Service) system is also available if needed.

Four community learning centers have been created and equipped to support the project students. These four sites are the Indiana Vocational Technical College (IVTC), the South Calvary Baptist Church (one of the Indianapolis Churches for Educational Excellence [ICEE]), Hispanic Wholistic Education Center, and Christamore House, a community center that serves many needs of the members of its neighborhood, from pre-school to geriatric. These neighborhood centers are geographically near (all within five miles) but culturally distant from the university. Equipment at each site includes four microcomputers, a video monitor with cable access and videocassette machine, a telefacsimile (fax) machine, a video disk player, a telephone with voice-mail capability, and a library of resources for the courses and on operating the equipment.

Approach to Marketing. Marketing is a cooperative effort between the university and the remote learning sites. The Undergraduate Education Center works with walk-in students and looks for students from the neighborhoods who are qualified to participate in the New Pathways courses. At the same time, the learning sites actively promote the New Pathways program through their normal community

networks and activities. The university provides brochures and other print materials, as well as counseling staff to assist in screening applicants. Staff from the Weekend College Learn and Shop Office go to the various community sites to register students.

People Involved in the Project.

- Executive Vice Chancellor and Dean of Faculties: some of the vision for the role that technology will play in the teaching mission of the university, and for the interaction between technology and course content and between technology and the renewal of faculty in producing high-quality video courses, comes from this office. The New Pathways project is well integrated into the administrative fabric of the university and profits from administrative support.

- Vice Chancellor for Undergraduate Education: this individual is involved in developing the university's relationships with under-served student groups. The Vice Chancellor plays a key leadership role both in being a liaison between the university and the communities, and in integrating the New Pathways initiative into the objectives of the undergraduate curriculum. This office stresses the importance of listening to the needs of the under-served communities and is the ear by which that listening is accomplished.

- Director of Special Media Projects in the Executive Vice Chancellor and Dean of the Faculties Office (Project Director): the Project Director is the primary manager of this activity. All interviews confirmed the key role of this person. The leadership style is hands-on and personal. The director collaborates with all parties in the project.

- Project Evaluator: this part-time person is assigned to the project specifically for the purpose of evaluation.

- Professors: one professor is assigned in each of the disciplines of the five courses being offered: Chemistry, Math, English, History, and Information Resources and Student Research. Junior faculty members and graduate assistants are chosen by this primary professor to support instructional design, delivery, and communication.

- Graduate assistants: there are (or will be) graduate assistants in Chemistry, Math, English, History, and Information Resources and Student Research (only Chemistry had been active by the time of the first visit).

- Director of Integrated Technologies: Integrated Technologies is a new department which includes video, voice, and data (formerly separate units

within the university). This department supports all technologies related to production and delivery of the New Pathways courses.

- Site Supervisors: there are directors at each site who are responsible for facilities and for coordinating with the university in this project.

- Assistant Director of Office of Credit Programs: this person provides on-location management of registration at remote sites.

- Undergraduate Academic Advisor: the office of academic advising provides counseling services for undergraduate students including New Pathways students; one staff person serves on the New Pathways advisory council.

- Student mentors: the student mentors are (or will be) recent students of the courses; the intent is that they also be from the specific remote-site community (not yet possible).

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Relationships. This project is well integrated into the mission and administrative structure of IUPUI. The Executive Vice Chancellor and Dean of the Faculties believes that technology can play a significant role in renewing faculty energies and in assisting the university in fulfilling its service obligations to Indianapolis and the state. This leadership is further augmented by the Vice Chancellor of Undergraduate Education and the unique role of this office in representing the university in the local communities, especially under-served communities. The day-to-day management and life of the project, however, resides with the Project Director. The Project Director has personal contact with everyone involved with the project. The administrative leadership noted above is executed ably through the Project Director, who has ready access to the advice of those administrators. Members of student services staffs are not specifically assigned to the New Pathways project but manage students and tasks as part of their normal responsibilities. They are knowledgeable about the project aims and objectives and their related support roles. And the new university department, Integrated Technologies, is immediately involved in the production of the New Pathways courses.

Student Support Structures. New Pathways students are supported through existing student support structures. These include Undergraduate Advising, Undergraduate Education Center, Office of Credit Programs, and Financial Aid and Admissions. Members of these units do not necessarily have specific responsibilities for New

Pathways students (in the normal course of events, an advisor may or may not know that he is talking with a New Pathways student), but support staff are aware of the unique aspects of the New Pathways project. The project has included representatives from these services in the project advisory council.

Faculty Support Issues. The project has addressed faculty support issues carefully. The project has engaged the academic departments and their leadership in identifying the faculty to be involved in this project. This insures that the subtle and important issues of how project participation will be counted in tenure decisions, etc. will be handled within the structures where those decisions are made. Interestingly, in the Chemistry department, the selected faculty person is tenured, a well-established, well-recognized master teacher who was eager to accept the challenge of the demands of televised production, whereas in the Math department the selected faculty is new, non-tenured, and sees the New Pathways project as an opportunity to do important work that will advance his research. The point is that the decisions are made within the departments and under the guidance of academic department chairs.

Integrated Technologies including instructional designers are a major resource in the project. This unit is committing enormous staff time and energy to the production of these five courses. The project is serving as a means for this new administrative unit to define itself and establish methods of operation.

Staff Support Issues. This project consumes nearly all the time of the Project Director and major portions of the time of the faculty directly involved in the project. This indicates the good support and strong commitment to the goals of the project by these persons and others involved in the project. The size of the project probably warrants additional staff resources, but because of high energy, commitment, and enthusiasm of the staff, and because the project involves so many different people throughout the university the resources currently committed are probably adequate for the time being. However, if the project decides to do a systematic market analysis or to become more involved in recruiting efforts, additional resources will have to be committed to the project.

Cost Factors. On the surface the costs of this project are high--perhaps extremely high, especially per-student costs. However, the costs must be looked at in the long range. The institutional metric may be as long as ten years. New technologies are being used; new technologies are being invented; the cost/benefit may not be determined for years.

A partial list of technological costs follows:

- Equipment for three remote sites (IVTC outfitted its own classroom): four microcomputers, video monitor, videocassette machine, fax machine, a video disk player, telephone with voice-mail, and a library of resources on the equipment and courses;
- Cable access;
- Use of Lecture Hall 101 and related production facilities.

A partial list of human costs follows:

- Instructor stipends for developing five New Pathways course;,
- Student mentors for four remote sites;
- Project Director and project evaluator (part-time to this project);
- Large commitment of staff time from the Office of Integrated Technologies.

FACULTY REACTION TO THE PROJECT

Information About Interviewees. Two instructors were interviewed--one in Chemistry and one in Mathematics.

Course Development Issues. Faculty are excited about the results of their New Pathways courses. They are getting excellent production support from the new Office of Integrated Technologies. TV production cramps their style; they want to be more spontaneous, more natural, more like they have always been in the classroom, but the constraints of the production do not allow all the freedom they are used to. While recognizing a certain amount of frustration with the production demands, they also recognize that the product is better. The time required to redesign these courses is great. The stipend provided by the project is a valuable incentive, but it does not compensate for the added time required by this type of production. While neither professor complained, the question must be asked about the future, the future when there is no Hawthorne effect or eager and committed professors who want to be part of something new. Perhaps all professors in the future will be trained in these methods, so that future efforts will be less costly and demanding of human resources. In the meantime, the project should advantage itself of the opportunity to document the production costs of these courses for future reference.

Technology Issues. This project is technologically wealthy. The combination of Lecture Hall 101 and the four remote sites is a technology *tour de force.* But the most startling insight of the first visit is that this project is not about technology. The professors see the technology only as another teaching tool. The students hardly recognize it. The students and mentors alike seemed to take the position that this is business as usual. Other than the need to manage the costs of outfitting and maintaining the modern classrooms, technology is "no big deal." This is not to say that the remote sites take it for granted. Site directors of the two community sites visited were grateful to have these resources on their premises. They have taken extra precautions to manage them well, going to the expense of installing anti-theft devices as a precaution to ensure the equipment will not "walk" off the premises. These community centers will be allowed to use the equipment for other community training opportunities. So the technology is valued as a resource, but the use of technology is taken for granted.

Pedagogical Issues. The professors are investing enormous time and energy to develop these courses. They signed on knowing they would, but the commitment is greater than they had anticipated. The intrinsic rewards are satisfying. The extrinsic rewards (stipends) are appreciated but non-essential. When the time comes to find professors who need to be motivated by adequate extrinsic rewards this could become an issue. At the same time it should be noted that the Integrated Technologies should become better in training and supporting faculty producing their courses for TV for the first time. This comment comes not from any negative criticism of what Integrated Technology is doing but from experience that suggests processes get refined with experience. These redesign efforts are new at IUPUI as are the production processes. Experience will yield improvement and efficiency.

STUDENT REACTIONS TO THE PROJECT

Basis for Information. The student reactions are very positive. The students (with traditional classroom experience) value the support they are receiving. They prefer the video version of the course to the live classroom because the video (a video recording of the live classroom) is an important learning tool; they view again what they did not understand the first time, and the videos are valuable review resources for examination preparation. Self pacing is a major advantage.

Motivational Issues. The one student who fit the project profile could not have taken this course without the New Pathways project. Delivery to the neighborhood was essential; in this case it was the student's work place. The trip to campus and related inconvenience of parking and getting to an on-campus classroom would have

prevented enrollment. The student was initially motivated by a desire to move on in life, to get a degree and find a better job. The results of this course are promising.

Technology Issues. Students all preferred and used voice-mail for contacting their professor, graduate assistants, and mentors. However, the electronic mail was not available for use until the habit of using voice-mail was established. In the second semester when students have a choice between electronic mail and voice-mail, a different consensus may emerge.

Pedagogical and Evaluation Issues. Student assistants delivered and administered examinations to the remote sites. The testing method and situation appears to have been ideal; the testing site is a familiar work place and lacks the tension often associated with a large classroom test environment.

Special Support Issues. The Chemistry professor and assistant have developed a remarkable innovative approach to teaching a laboratory course at these remote sites. The innovation involves assembling take-home lab kits with chemistry experiments designed to be conducted in the kitchen sink with nothing more than the kit and common household chemicals. One student complained that those reagents were not common in her/his home, and every lab experiment had to begin with a trip to the grocery store. The professor has modified the procedure so that even these common household items can be supplied in the kits if the student requests them. This demonstrates the extent to which the project is willing to provide support to New Pathways students.

Additional/Summary Comments. At this time, it appears that this project works for students. This statement is made in the awareness that (1) there are not many students involved and (2) only one of five courses has actually been delivered. At the same time, the first site visit suggests that no problems will emerge when there are many students and when all five courses are being offered at four remote sites.

ADMINISTRATORS' REACTIONS TO THE PROJECT

Basis for Information. Administrators interviewed included the Executive Vice Chancellor and Dean of the Faculties, and the Vice Chancellor of Undergraduate Education; both are deeply involved in the concept of the New Pathways and in the administration of the project. It is clear that the project is strategically important to them both in different but complementary ways.

Faculty Related Issues. The Executive Vice Chancellor and Dean of the Faculties believes that technology and off-campus delivery of instruction are strategically

important to the revitalization of his faculty and the mission of the university. A faculty person confronted with the opportunity to rethink, redesign, and produce course materials with professional production, coaching, and tools will not emerge from the process without having been profoundly affected by the process. Students are the direct beneficiary of the process, but also faculty and the institution as a whole pront.

The Vice Chancellor of Undergraduate Education sees the project as helping fulfill his and the university's promise to the under-served communities to directly serve their educational needs. The issue of whether the New Pathways courses are the right courses is likely to be addressed here first because of the close working relationship between this office and the under-served communities. This office hears and speaks for the targeted service communities and will speak for those communities on the course selection issue. However, all members of the project administration are concerned about the course selection issue. This is not seen as a divisive matter; on the contrary, when the time comes, this problem is likely to be solved with input from all parties involved in the project management, including the project advisory committee and the site supervisors.

Technology Issues. The technology is not an issue; it is simply a tool. Nothing heard or seen during the two-day site visit challenged this view.

Institutional and Political Issues. There may be some skepticism among faculty not directly involved in the New Pathways effort about the use of this much money for this purpose. On the other hand the Chemistry course is being broadcast on the local cable system, and some sources indicated that the course is stimulating discussion and interest and creating a positive image. When the production quality is good, others recognize the quality and can imagine themselves in that role. Teachers are, after all, performers, and what better medium for performing is there than television.

Cost/Benefit Issues. The costs of this project are high and will continue high until more students are involved. Projected numbers of students are not likely to appear within the time frame of the New Pathways project, but within the time frame suggested by the Executive Vice Chancellor and Dean of the Faculties, i.e. ten years, this project is likely to pay large dividends in faculty renewal, in curriculum reform, in developing new outreach methodologies, and in mining new student populations for the university.

Greatest Gains for the Institution. The New Pathways project has been incorporated into the mission of the university and addresses several complementary strategic goals. The two primary goals are (1) outreach into the immediate neighborhoods for

under-served community members, and (2) faculty renewal. These are not fringe issues, but fundamental to the heart of the institution.

FIRST VISIT SUMMARY

General Analysis of Interviews.

How well are project goals being addressed in actual practice? Members of the grant team are universally understanding of the aims of the project. The number of students involved in the project so far raises a question about whether or not the target populations are in fact available and will participate. This question needs to be answered.

What, if any, are the problem areas for the success of the project? What is working well, and why? Recruitment and course selection are concerns. The first course to be ready, Chemistry 101, was delivered this past fall; the number of students enrolled was clearly disappointing. South Calvary Baptist Church had no students, the other three sites had one each. The preliminary numbers indicated that perhaps as many as 10 per site might be enrolled, but after the screening process, this number was whittled to one. This raises a major concern about recruiting. The project by design intends to start slowly in the belief that as early students succeed, enrollments will grow through word of mouth within the communities. However, there is the additional concern about the courses being offered. New Pathways students must qualify for admission to the regular baccalaureate program, so the question naturally arises: Do these students, in the numbers expected, live in the targeted communities?

Many persons on and off campus ask why such tough academic courses were selected for the New Pathways program. Are these the right courses to be offering if this program is to provide essential educational services to these communities? The project staff admit that the decision to offer these courses to students who are fully qualified for baccalaureate admission was based on an act of faith, not on a market analysis. At least two courses of action appear: (1) Stop the project midstream and commit project resources to a market analysis. (2) Proceed with the redesign of the other four courses and give the project time to build experience. Since the redesign of these courses will affect all students, on campus and in the New Pathways project, the second approach seems reasonable, although the numbers of students served within the New Pathways grant period may be disappointing.

There was a puzzling element concerning the course selection issue. Nearly everyone interviewed seemed concerned that easier courses, even remedial courses, should be offered. However, one view argues for giving the project time. One student

interviewed is a single parent who works full time and took Chemistry 101 by committing lunch hours, as well as many evening hours, to the effort. When lunch hours were not available, the student took the tapes home and viewed the lecture at night. There is no doubt that this student struggled with the course material; the student, the teaching assistants, and the professor confirmed it. But the student succeeded. As a result, this student reported with deserved pride that s/he will enroll in two on-campus courses in the weekend college next semester. S/he further reported with conviction that s/he was on her/his way toward a degree. Both outcomes fulfill stated goals of the New Pathways project. So despite the concern over numbers and about course selection, the project needs time to unfold. When all five courses are on line, the community centers have more experience in marketing, and the word of mouth has time to permeate the communities, it will be time to modify or expand the course selection.

A second student interviewed was recruited because the center director called the student's aunt and said this student should enroll in the program. Neighborhood networks can work, and did in this case.

Do top administrators seem to have a good understanding of the project? Are they supportive? Yes; very positive comments are noted throughout discussions in this report.

At this point in the project, what do you think will encourage or discourage the continuation of the project after the Annenberg/CPB Project funding ends? The initial evaluation visit revealed nothing that will prevent ultimate success of these efforts. This is not to say that there will be no changes but to reiterate that the institution is committed to the success of this effort. The neighborhoods to which the university is extending itself will never be the same and neither will the university as a result of this collaboration. This IUPUI experiment is a bold effort to take the university to the communities who need it most.

How will this project have an effect on the likelihood of other institutions developing similar projects? There is a combination of intrinsic and extrinsic factors in Indianapolis that is making things come together for IUPUI in this New Pathways project. All of these factors contribute to what should result in a successful effort. However, because all of the factors are important, it may not be easy to replicate this combination of factors at more than a few institutions. The combination includes all of the following factors (this is no doubt a partial list): (1) a state system of higher education in which three major universities have different enough roles so that their niches minimize the destructive tendency to compete for resources; (2) a top level administrative commitment to the immediate urban community; (3) a similar commitment to undergraduate education; (4) an understanding on the part of this

administration that there is an important interaction between teaching and technology that results in benefits to teachers and students; (5) an understanding that there are major up-front costs involved in production of good courseware; and (6) an understanding that remote students need learning communities comparable to those of on-campus students. Although this set of factors may not emerge anywhere else, the vision which vitalizes this project should have far-reaching impacts on other urban universities. The design of these off-campus courses addresses the most common arguments against remote delivery of the core curriculum.

Summary of Evaluation Outcomes

Instructional design effectiveness. The course reviewed is a major accomplishment. If the four courses to come are as effective as the one in place, these will set a new standard for remote education.

Instructional delivery effectiveness. Students are learning chemistry from this New Pathways course. Faculty are especially encouraged that the remote-site students are performing as well as or better than the on site students. The technologies are not producing a negative effect. The faculty involved in redesigning their courses within the New Pathways project are confident that what they are producing is better--better teaching, better presentation, and capable of producing better results on campus and remotely. The technology and the support they are getting to redesign their courses are seen as an enhancement, not a burden (although it is clear that careful production requires a much greater effort).

Students are grateful for the support inherent in this New Pathways project. They are being spoon-fed. They are succeeding as we would expect from a spoon-fed process. The project needs to know if they are succeeding because they are being spoon-fed, because sooner or later someone will ask the question: Success at what cost? The question will not necessarily be surfaced by the project or its initiators, but may be surfaced by units competing for precious resources.

The current problem for the project is that there are only three students, and only one of them really fits the New Pathways profile. There are no obvious problem areas other than those mentioned already: recruiting and offering the right courses. Time will answer the important questions about whether the students are in fact out there.

Organizational development. Concerns here are in the area of cost effectiveness, though it is too early to make judgments.

Effectiveness of support systems. Students and faculty are well supported. Support of the New Pathways students depends on the university student support services.

This appears to work and to have integrity. A student advisor indicated that she/he was often unaware that she/he was speaking with a New Pathways student unless that fact somehow came up in the course of their conversation. So she/he had advised a student against taking Finite Mathematics (the second course to be offered in the project) because in her/his informed opinion, the student would have had difficulty succeeding.

Although this may appear to inhibit success of the New Pathways project, at bottom is the success of the students. Other support services are well deployed: the office of Credit Programs supports New Pathways by sending a representative to the various sites to register students. In the Chemistry course just completed, student mentors and graduate assistants both had weekly contact with New Pathways students at their community sites. The students greatly value this contact and attribute their academic success to the direct support of these liaisons. The mentors and graduate assistants not only support the academic success of the students but shuttle homework and examination papers between the remote sites and campus. Site supervisors, students, and campus-based providers of support services all acknowledge the effectiveness of these systems.

The Office of Integrated Technologies is playing a major role in assisting professors in redesigning their courses. It is not an easy transformation. One professor clearly struggles with the constraints that a more rigorous presentation places on style. It restricts a kind of spontaneity she/he has always valued. At the same time she/he values the product that the Integrated Technologies has helped to make of her/his course. The Office of Integrated Technologies is almost a product of the New Pathways project in that the agenda of the New Pathways project has given the Office an opportunity to succeed.

Chapter 6

ACCESS, INVOLVEMENT AND SUCCESS IN DISTANCE LEARNING

THE EXTENDED LEARNING INSTITUTE NORTHERN VIRGINIA COMMUNITY COLLEGE

Barbara Beno
President, Vista Community College

GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. Northern Virginia Community College is one of 23 community colleges that make up the Virginia Community College System. The five-campus college serves the counties of Arlington, Fairfax, Loudoun, and Prince William, as well as the cities of Alexandria, Falls Church, Fairfax, Manassas Park, and Manassas. The college consists of the Alexandria, Annandale, Loudoun, Manassas, and Woodbridge campuses, and the Extended Learning Institute (Annandale). Northern Virginia Community College was established in 1964 and has grown rapidly with the cosmopolitan population of Northern Virginia; the present enrollment is about 38,000 students per semester. This year Extended Learning Institute served about 3,100 students, a 25 percent increase over last year's enrollment.

The college mission is to "ensure that all individuals in the Northern Virginia area are given an opportunity for the continuing development and extension of their skills and knowledge." To meet this broad mission, the college is organized around specific needs: Occupational Technical Education, College Transfer Education, General Education, Continuing Education, Community Services, Developmental Studies, Cooperative Education and job training (Special Training Program). Access is a paramount concern and is primary in the philosophy of the institution's leadership.

The Extended Learning Institute currently offers 75 distance courses using instructional television, computer conferencing, video tapes, and print-based media. The Institute allows continuous enrollment; that is, most of these courses run for six months, but an individual may start at any time. The Extended Learning Institute plays a key role in helping the college extend its accessibility to students unable to reach campus-based classes because of disabilities, home or work responsibilities, incarceration or, with increasing frequency, traffic gridlock. At present, the college has only about 40 percent of needed classroom space, so distance learning offers classes which otherwise could not be scheduled. Over 100,000 students have participated in the Extended Learning Institute classes to date.

Goals of the Project. The New Pathways Project extends the educational services offered by the Extended Learning Institute by developing a complete learning experience--a degree by distance and the integration of the distance program and students into the mainstream college environment. The project will do several things:

- Develop a working relationship between Extended Learning Institute staff and the staffs of the five campuses, and joint policies and procedures to ensure distance students receive a rigorous experience comparable to campus-based students.

- Develop or revise 18 courses, which will each use the integrated delivery technologies best suited to its content and design, and which will serve as models for the future adaptation of all Extended Learning Institute courses. New courses will include those needed for a complete Associates Degree in General Studies and Business Administration.

- Improve communication between students and student services providers by developing a comprehensive voice-mail system and a series of counseling videos covering degree and academic counseling, study skills, vocational counseling, and college services and college life.

- Develop an alternative, online access to reference materials and data.

- Provide faculty, students and staff with improved communications technologies including voice-mail, live audioconferencing, and computer bulletin boards.

- Develop instructional methods which make use of the college's compressed video system by developing and testing instructional models and providing faculty development activities.

The project is to serve Extended Learning Institute's 3,100 students per semester. These distance students are somewhat older (about 46 percent are between 25 and 44 years of age), and the majority are part-time (77 percent) and female (66 percent). About 50 percent of Extended Learning Institute students take both Extended Learning Institute and campus-based courses. The availability of a degree is expected to attract additional students to the Extended Learning Institute.

The grant of $149,979 augments the Extended Learning Institute project funds of $230,742 for a total project budget of $380,722. Costs will be discussed in detail in another section, but the major cost elements of two years of grant funding for the project are as follows:

- Coordination by the Project Director, $23,000 per year.

- Workshops on distance learning for faculty and staff (central to the task of integrating the project into mainstream curriculum), $4,700 per year.

- Faculty stipends (the college has not provided funds or release time for faculty to develop curriculum for several years; stipends available through the grant for course development have been good morale boosters), $9,000 ($500 for each of 18 faculty).

- Production (the availability of the college TV studio helps keep the costs of production down), from $345 to $1,700 per course.

- Equipment for voice-mail and voice bulletin board (to be used in Extended Learning Institute courses and Student Services).

- Mainframe and microcomputer services (computer conferencing is conducted on an underutilized mainframe computer, and a microcomputer system is used to track Extended Learning Institute students); these have helped keep project costs relatively low.

- Mainstreaming project students and curriculum (funds for academic program heads will facilitate the integration of New Pathways and Extended Learning Institute courses and students into the mainstream of the college).

It is important to note that the Extended Learning Institute receives base funding through a set, enrollment-based formula. All FTEs (full-time equivalent students) generated by Extended Learning Institute courses revert to the campus and discipline which provides the faculty member; thus Extended Learning Institute courses support the college budgets, which derive in part from the FTEs generated the previous year. The Extended Learning Institute enrollments do not count directly toward the campus budget within the college's budget allocation formula, but they do generate additional faculty positions for campuses. Extended Learning Institute enrollments also generate more revenue for the college as a whole because it is twice as productive (i.e. number of students per faculty) as the campus sections. Campuses benefit from this productivity because there is more revenue to divide for campus resources such as learning resource centers, and the increased productivity allows the academic divisions to run some low-enrollment courses.

No amount of analysis could describe the total cost of the Extended Learning Institute, nor could any cost/benefit ratios be used to determine its funding. But because of the high productivity and low capital costs, the cost per student in the

Extended Learning Institute is probably at least comparable to the two large campuses and perhaps better than the three smaller campuses. However, the administration appears to have a product-orientation rather than a cost-orientation. Most responded to the questions about cost and benefit with a reference to improved access as the central mission of the college and of the Extended Learning Institute. The Extended Learning Institute and New Pathways will produce a much desired product--a distance A.A. degree and improved curriculum for distance learning.

Approach to Marketing. The programs offered through the Extended Learning Institute are externally marketed through the college's class schedule, which is mailed each semester to every household in its service area. The schedule includes a special listing of all Extended Learning Institute courses, as well as cross listing by discipline under each campus schedule. A full page of the schedule describes Extended Learning Institute enrollment procedures. No distinction is made on transcripts or in college marketing materials between distance courses and campus-based courses; distance courses are equivalent to campus-based courses.

Distance students may register at any of the five campuses or at the Extended Learning Institute offices in Annandale. They may also register by phone, using a credit card, and have course materials sent to them. Most Extended Learning Institute courses provide six months to complete and offer continuous enrollment. Thus, enrollments tend to increase after the semester, campus-based classes fill and students are turned away.

People Involved in the Project. A key component of the grant-funded portion of the project is to improve communication between Extended Learning Institute staff and campus-based staff in order to more fully integrate the Extended Learning Institute and its students into the college mainstream. To market the Extended Learning Institute courses internally, the project provides for faculty and staff workshops on the new options available under the New Pathways Project. The first, held in November 1991, was well received by persons interviewed in the course of this evaluation. A second is scheduled for April 1992. Participants received a tote bag imprinted with the "New Pathways to a Degree" project logo.

The Northern Virginia New Pathways Project involves staff and faculty at all five campuses as well as all divisions of the college. The staff and faculty workshops included the participation of the college President, the provosts (CEO's) from each campus, division chairs, counselors, learning resources staff, librarians, and faculty. Staff at the libraries are involved for limited courses that have library assignments. Staff at all the library resource centers are involved since all Extended Learning Institute courses require students to take three to four exams on campus.

The project is directed by the Director of the Extended Learning Institute, relieved half-time of administrative responsibilities in order to guide the project. The college's Associate Dean for Instructional Technologies and Extended Learning provides internal consulting on technical matters. He will also disseminate information on the project throughout Virginia's community colleges through his leadership of the Virginia Community College System's Distance Education Network. This individual is a leader in distance education and instructional design and the former director of the Extended Learning Institute. He reports to the Dean of Academic and Student Services, who sits on the President's cabinet. The Associate Dean is a member of the Division Chair's Roundtable.

Three members will be chosen from faculty who have formerly served in the Extended Learning Institute to be academic program heads, providing advice to project staff on discipline needs, as well as being a contact for campus-based faculty wishing to teach in the distance mode. They also participate in college cluster and division meetings and are charged with representing distance learning issues to those academic groups. Additional teaching faculty will work on development of English, philosophy, and history courses, and other faculty will be hired to work on six new courses not yet identified which will complete the degree programs.

The project includes 3.5 faculty positions used for course design and development. These course designers are also assigned to coordinate computer applications, video production, course evaluations, and activities at the campus learning resource centers.

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Relationships. The Extended Learning Institute New Pathways Project is administered by the Director of the Extended Learning Institute, who reports to the Associate Dean for Instructional Technologies and Extended Learning. Many persons at the college referred to the Extended Learning Institute as the "sixth campus" in spirit, attesting to its status within administration as an important part of the overall college.

The college President has been a key influence on the Extended Learning Institute and New Pathways Project. He has led the institution for over 25 years through its growth from a single campus to a five-campus college. He personally advocates innovative educational programs and telecommunications technology nation wide. He has promoted the Extended Learning Institute within his college and has made careful selections of campus provosts to solidify support for educational telecommunications. Two provosts interviewed for this report were hired in the last three years; both had previous experience with telecommunications; both have

attended the New Pathways workshop and are supportive of the project. A central part of the President's message about the project is that the college's service area has many potential students who are time-bound and place-bound. He has successfully shared that message with his faculty and administrators; most of them stress the importance of distance education in providing access to students who otherwise would not be able to attend classes.

While the Extended Learning Institute has been in existence for over ten years, in the past it has not always been perceived in the positive light it now is. The new leadership, the Associate Dean for Instructional Technologies and Extended Learning and the Extended Learning Institute Director, have worked hard to improve the college's perceptions of distance learning, to see it as a resource to the faculty and administration. They seek out faculty who want to teach using these tools; and they support faculty by allowing them to select the technologies they want to use. The mix of technologies used for each class is largely dependent upon the instructor's comfort with those technologies. The director and the Associate Dean for Instructional Technologies and Extended Learning were repeatedly described by interview subjects as supportive, very smart, effective leaders of the Extended Learning Institute.

The New Pathways Project has helped to improve further the relationship between the Extended Learning Institute and the five campuses. Several administrators told me that the workshop held last November enhanced their understanding of distance education and piqued their interest. Project staff confirm that the receipt of the Annenberg grant, and the status associated with it, provided an important opportunity to bring together staff and faculty from the entire college. The project goal of integration is key to the success of the degree program, and the workshop has moved the Extended Learning Institute rapidly toward that integration.

A relationship not to be overlooked is that between the Associate Dean for Instructional Technologies and Extended Learning and the Virginia Community College System. The Associate Dean has recently accepted leadership for the System's Distance Education Network. It is expected that the New Pathways Degree program developed at Northern Virginia Community College will eventually be shared with other colleges system wide via the network.

Student Support Structures. All Extended Learning Institute distance students have a number of standard means of achieving support. On any campus, they may visit the office of admissions, counseling departments, learning resource centers, libraries or bookstores to obtain information or materials, or to use campus computers for computer-based instruction and communication. Students can also register through the Extended Learning Institute. All bookstores keep Extended Learning Institute

course books in their own section for ready access, and at least some bookstores will accept phone orders for course materials. The Extended Learning Institute also sends course materials such as the syllabus or course workbook directly to students' homes. Students interviewed expressed satisfaction with the availability of general services; most indicated they had not used many of the counseling/student services available on campus. All students expressed satisfaction with the registration process.

Key to the success of student support services in the Extended Learning Institute are the course assistants who are available weekdays to take student phone calls and handle administrative problems. Students who have registration questions, who need advice on how to approach a teacher to ask for an extension on an assignment, or have problems with the technology or with any other personal or administrative matters may phone the course assistants.

The assistants also help faculty track the students' progress so faculty can notify students who have passed a checkpoint without meeting the course standards. All distance courses have "checkpoints" in about the second and the fourth month. These are described on the course materials each student receives from the Extended Learning Institute. If a student passes the checkpoint without submitting the requisite number of assignments, or if a student fails to interact in the course in the first month, the course assistants notify the instructor who provides follow-up letters or phone calls. Course assistants also organize student assignments that are mailed in, and file course records at the Extended Learning Institute for each instructor.

The technologies used to keep students in contact with the instructor vary by course. All faculty hold office hours at the Extended Learning Institute offices, and are then available for personal or phone conversations. Many also make themselves available to Extended Learning Institute students at their campuses during their other office hours. In classes with computer conferencing, a bulletin board is available for students to "talk" with other students and their instructor. In classes with a voice-mail system, each instructor has a voice-mailbox and in language courses can return a call to a student voice-mailbox. Students reported the turnaround time for computer and voice-mail contacts with instructors to be very good--within a few days. Extended Learning Institute policy requests all instructors to respond within 48 hours. One possible weak link are the video courses; all tapes are available for use in the resource centers, but not all tapes are available for check-out; therefore to view them at home, students must be sure to videotape the broadcasts.

The project goals include plans to develop or reformat 18 courses using the most appropriate technology mixes available, and to have these courses serve as models for future course development. Another plan is to develop a series of counseling videos covering all aspects of student services and study skills.

Faculty Support Issues. The Extended Learning Institute routinely provides strong faculty support in the form of course assistants who provide clerical and record-keeping support, and course developers who assist faculty in learning and using new instructional technologies. The Extended Learning Institute staff, and the college's computer systems staff and TV studio staff provide assistance with production of new courses. The existing relationship between the Extended Learning Institute and the learning resources centers also facilitates test taking, which benefits faculty.

Incentives. Faculty development is a major incentive for faculty teaching distance courses. The majority of the institution's faculty have been teaching for 15 years; developing and teaching distance courses with the support and encouragement of Extended Learning Institute staff is an opportunity for renewal. The New Pathways Project will provide a series of workshops for faculty and counselors on distance education and the new technologies. It is expected that the demonstration of technologies, like voice-mail for counselors, counseling videos, and computer conferencing, will ultimately result in their use outside of distance courses to benefit the whole faculty.

Faculty development. The New Pathways Project provides $500 faculty stipends for course development, an incentive that has not been available at the college for some years.

Production support. There is no separately identified staff support program under the project. The New Pathways Project provides staff support primarily by supporting development of new courses, and brings enhanced recognition to the Extended Learning Institute efforts.

Staff Support Issues. The development of the voice bulletin board system, the counseling videotapes, and the online database for the libraries/learning resource centers will change the way in which staff and students interact; it remains to be seen whether these technologies will have a major impact on staff.

Cost Factors. The project calls for New Pathways funds to be supplemented (more than matched) by college funds over the three years of the project. Extended Learning Institute staff report that the college would have developed the components of the New Pathways Project anyway, and the availability of grant funds simply enhances its ability to do so. As mentioned earlier, the college appears to have based its decisions on the project goals not on cost but on the belief that improved accessibility justifies the effort and cost of the project.

FACULTY REACTION TO THE PROJECT

Information about Interviewees. On this visit, six of the faculty teaching in the Extended Learning Institute were available. They represented the disciplines of English, Art, Accounting, French, Psychology, and Technical Writing. Two were also program heads under the New Pathways Project, in English and Social Sciences. Counselors are meeting to begin developing counseling videotapes; the first counselor meeting was held around the time of the site visit. Counselors were not included in the interviews because the counseling videotapes were not well enough along to warrant discussion at that time.

Course Development Issues. The faculty interviewed were enthusiastic about the support they receive in developing courses; all stated that they find the course developers as well as the Extended Learning Institute Director to be non- threatening, technically competent, and very supportive. All stated that they are free to use only the technologies with which they feel most comfortable and that Extended Learning Institute staff help train them and suggest which technologies may be most appropriate.

Faculty stressed the excitement they experience when coming to the Extended Learning Institute offices for their "phone" office hours; several said that the chance to talk with faculty from other campuses or disciplines about instructional issues, including new technologies, is a primary incentive to participate in distance education.

Technology Issues. The faculty interviewed use a range of technologies: the French instructor uses pre-recorded videotapes in combination with voice-mail and teacher-produced videos and delivers instruction to several campuses at the same time; Accounting uses computer-based workbook exercises; Psychology and Technical Writing use computer conferencing between students and teacher; and Art uses videotapes and cable TV. The project calls for an expansion of the voice-mail system, and some of the instructors had been using it for only one week at the time of this site visit; all expressed positive evaluations of it.

When asked how they started in distance education, most indicated that they had limited technical skills or interests, but were drawn to the Extended Learning Institute by the prospects of trying out an instructional idea or simply doing something new. They all appeared to use only the technologies they are comfortable with, knowing that the selection of technology is entirely at their discretion.

However, the Extended Learning Institute staff confide that they encourage faculty to expand their repertoire of technologies by demonstrating for them what they have

selected on their own; faculty are usually quick to recognize when it doesn't work well and ask for more advice. Faculty who wish to expand their use of technology freely make suggestions to the Project Director about what access or new applications are needed, and all reported him to be very responsive. Faculty and staff work well together in solving technology issues and instructional problems, often by a new technology mix. For one of the faculty interviewed, distance education resolved the teaching problems that his own loss of hearing caused. He and his distance students now converse using voice-mail and computer-guided workbook lessons.

Although the New Pathways Project will push for the new courses to use the most appropriate mix of technologies, Extended Learning Institute staff's relationship with faculty is such that faculty will be easily coached into trying new technological mixes.

There are some technological capabilities faculty hope to refine. One is in providing feedback on computer-conference assignments. At present, the faculty must write comments on written assignments to another file or at the end of a student paper. Faculty hope to change the computer system so that comments can be written on the document itself. Some teachers expressed the wish for live telephone courses that would facilitate more discussion, or for more live telephone courses using cable or the interconnect system (these classes could not be open-enrollment classes). For the most part, the new courses planned by New Pathways are not well enough along for faculty to assess the new technology mixes.

It is important to note that most of the courses currently taught in the Extended Learning Institute, as well as the planned new courses, provide for continuous enrollment--six months for course completion (eight months with an extension). Thus, most students are working on their own without other students necessarily being at the same place in the course as they are. This method of enrollment calls for instructors to be intellectually available on all aspects of the course at all times--a requirement all viewed as non-problematic.

Pedagogical Issues. The faculty had some common perspectives on the pedagogical strengths and weakness of distance education technologies. Most stressed the value of increased access to education provided by distance learning as well as the importance of the self-paced nature of the continuous enrollment policy. They believe that many distance students are unable to travel to campus-based classes, and many have work and family responsibilities that make the self-paced format essential.

Several faculty stated that they feel they give more individual attention to distance students, particularly using the voice-mail and computer conferencing technologies (and students echo this view). Several faculty said they feel they spend more time with these distant students than they might with campus students, in part because

the technology provides for fast feedback between instructor and student on student work and instructor comments. The Extended Learning Institute encourages a 48-hour turnaround for instructors on some of the technologies, and a week turnaround for mail-in assignments. The course assistants, by helping track each student and notifying instructors of those who need a motivating letter or phone call, provide individual attention to student progress not consistently available in campus classes.

Faculty described their experiences with students who succeed using distance education technologies: they are typically older, attend school part time, and are motivated. Increasingly, campus-based students are also taking distance classes to complete their course load: the flexibility of distance classes helps these students juggle the work requirements of a full academic load.

The faculty report that technologies help some categories of students overcome blocks to learning or class participation that campus-based classes cannot offer. For example, the writing teachers explained how computer conferencing, in which students write to the conference and can view other students' work, has helped students, who are otherwise too unsure of themselves or too shy, to voice views in class. They typically read the other students' comments for validation or for examples of responses before writing their own. One faculty referred to this process as "normalizing" the student. Computer conferencing classes may require a student to write both the answer to a teacher-generated question or issue and to critique or reply to the response of at least one other student. This practice creates a technology-assisted dialogue in a safer environment (the computer screen, asynchronous time, perhaps at home) than the typical classroom dialogue.

In another example, the replaying of pre-recorded videos for language instruction have provided French students the opportunity to repeat lessons until understood at a satisfactory level-- customizing the lesson to each student's learning speed. The French teacher is presently teaching the same course on the interconnect system (with two-way interactive voice and one-way class video), on cable-delivered video and voice-mail, and in class using video portions only. She has accumulated data on student performance in all three teaching modes and find that student achievement in class varies with the composition of the class (older, motivated students tend to do better than 18- to 20-year-olds) but that this difference is not apparent in the distance courses (with the technology mixes).

Some teachers feel the distance students actually accomplish more in a semester than campus students, when one considers the instructional modes used. Most have workbooks or written assignments and text books along with the mix of technologies particular to their class.

In general, the continuous-enrollment distance classes require more flexibility of the faculty and restrict faculty choosing to teach in the summer to a two-week scheduled vacation. The turnaround times suggested by Extended Learning Institute mean most faculty have to remain consistently in touch with their students. Almost all indicated they like the flexibility in their own schedules that technologies afford them, and that the turnaround time and short summer vacation is therefore not an issue. All can access voice-mail from home, and some have computer modems for ready access to computer-based classes as well.

Some faculty clearly enjoy "playing" with new technology, have a developing sense of how technologies can be layered to achieve different pedagogical objectives, and will be enthusiastic participants in new course development under the project.

Several faculty mentioned that they feel they give students more attention than they would in a campus-based class. One noted that she enjoys writing comments on student papers via computer and tends to give more and more feedback (presumably she's quite speedy on the keyboard) and engages in dialogue with the students over her comments. One faculty pointed out that since instruction is individualized, she ends up repeating herself on general information, policies, procedures, and standard suggestions for good writing, to each student individually. On the other hand, she also recognized that this general information is good material for a revised course guide.

Faculty also recognize that distance learning options have allowed classes to run that would not have received sufficient enrollments at a single campus. This increases the course options for faculty seeking a change of pace and enriches the curriculum as well. All cite access as a primary reason for the college to support distance education courses. All think the available technologies could be responsive to their pedagogical interests with enough tinkering and expanded capacity. The only barrier to the project success cited by any faculty is the staffing and funding level of the Extended Learning Institute. All acknowledge there are simply too few resources to meet the faculty's needs as quickly as they would like, and all accept the need to extend limited resources by sharing them.

STUDENT REACTIONS TO THE PROJECT

Basis of Information. Four students were interviewed. They were selected to represent a range of technologies used by New Pathways Project courses. One was a student in a Psychology course that uses computer conferencing. A second was enrolled in a French course using cable-delivered videotapes and voice-mail. The third was a Technical Writing student using the computer to deliver course

assignments. A fourth was enrolled in a video French course and was mailing audiotapes back and forth to the instructor. Only one had previously taken a distance course.

Motivational issues. Three of the students taking the distance courses do so because they are unable to come to campus. One is disabled by recent surgery and is taking the course in French to fulfill a long-time goal of becoming proficient in that language. One student has a full-time job and family responsibilities that do not permit an evening per week at class. The class in technical writing will help him advance in his job as an engineer. The third is taking most of her classes on campus and has a job; her schedule does not afford her time to come to campus for her fifth class; she simply prefers the distance format and the involvement she experiences using videotapes and voice-mail.

Technology issues. All four students interviewed were enthusiastic about the technologies used in their classes, and experienced little difficulty using technology after the initial learning period. One student using voice-mail had used it often at work, and the two students using computers to do course work knew how to operate computers beforehand. For one of these, the modems used at work provided an introduction to modem use. The other student's friend provided the minimal expertise needed to hook up her new modem so that she could take the class. All students stressed the benefits of the flexibility the course provides with voice-mail and computer access available 24 hours a day.

Pedagogical and evaluation issues. All students believe they are learning as well as, and earning the same grades as, they would be if they were taking a campus course. Some of the students believe that they get more attention in the computer-based communication with the instructor. One favorably contrasted the attention she gets from computer-based communication to the inadequate communication in a typical class in which 30 students compete for a chance to talk in the space of one class meeting. She finds voice-mail more effective for getting feedback on her French pronunciation and grammar than participation in a class. (This comment is validated by teachers, who feel they are giving more individual attention to each student in distance courses than they can sometimes provide in a classroom.)

Two students mentioned their belief that to be successful, distance students have to be organized and motivated. It's easy to procrastinate coursework long enough to get "too far" behind, even with the checkpoint reminders they receive from Extended Learning Institute faculty and staff.

One student indicated that his instructor provides few critical comments on his written assignments which are submitted by modem and wishes that he'd receive

more criticism to help him improve. Nevertheless, he feels his approach to writing has changed dramatically for the better. He now is able to sit down and draft, edit, and review a work assignment before finalizing it. This he views as a serendipitous effect of using the computer to write and send his class assignments.

Two students indicated that taking a distance course has enhanced the amount of effort and thought they give to the class. One put it in these terms: "When I take an on-campus course, it's easy for me to be there for class, but put all thought of the course aside when I go home. In my computer-based class, I find myself thinking more about the work, sitting down to work on it more often, integrating it more into my life at home." A second student indicated that the multiple instructional formats--computer-mailed assignments, voice-mail, textbook work, and campus-based exams--have been a challenge to manage that has pulled him into the course. His initial expectation that the course would be "easy" was not fulfilled.

The students' points, I think, deserve emphasis: Students seem to find the technology-mediated interaction required of all students in distance classes to be engaging, perhaps more so than the anonymity and lack of participation that are possible in some classrooms. Furthermore, they may experience a sense of mastery in the effective use of the technology, another motivation on the way to learning the course content.

Some of the Extended Learning Institute courses clearly require the students to use multiple media--print-based, video, audio, and computer-based. The best technological mix may be one which provides a shift of activity at intervals sufficient to maintain attention and avoid burnout on any one medium, yet spaced enough to avoid stress or chaos.

Special support issues. New Pathways students interviewed for this evaluation were generally satisfied with the support offered by the Extended Learning Institute staff. Registration, obtaining the course syllabus and any technology manuals, voice-mail systems for instructors, course assistants, and checkpoint letters were all viewed as helpful and adequate for the students' needs. Similarly, all students reported interactions at the learning resources centers to be easy.

Additional/summary comments. Community college distance education students are largely working adults. This population is typically unlikely to use student services such as counseling, the career center, and advising without some prompting. True to form, the three adult students interviewed had not used counseling or other student services since being admitted to the college. It will be interesting to see how students use the new counseling tapes that will be produced under the New Pathways Project.

One might guess that videotapes will be far more effective in informing adult students about available student services than is requiring them to come to campus.

Students have adapted well to the distance technologies used in their courses, are satisfied with the quality of instruction, and are confident they are doing as well as, and learning at least as much as, they might in a campus-based class. For some students, the technology is itself engaging and enhances their performance. For all students, the convenience and flexibility offered by the distance courses is very important to their ability to take the class.

ADMINISTRATORS' REACTIONS TO THE PROJECT

Basis of Information. Eight administrators were interviewed for this first-year evaluation. The Project Director, who is the Director of the Extended Learning Institute, and the Associate Dean for Instructional Technologies and Extended Learning, are the most intimately involved in the New Pathways Project. The President has been a strong supporter of the project. Other interviewees were the Dean of Academic and Student Services, the provosts of two campuses, the business division chair at one campus, and the division chair and director of student development at another campus. All of the administrators participated in the November 1991 workshop. The two provosts are highly supportive of bringing more educational technology to their campuses, and the division chairs have faculty and counselors working on portions of the new Pathways Project. All administrators cited the importance of the November workshop in helping them better understand the project and its significance for their campus or work unit.

Faculty related issues. Several administrators cited the importance of technology-facilitated instruction as an opportunity for staff renewal. The Extended Learning Institute has marketed the new courses as such. All administrators cited the role that distance education plays in providing access when the college's and state's budgets have been constrained over the past few years. As noted earlier, the college is underbuilt, with its new facilities on hold awaiting better economic times. Funds for instruction appear to be more readily available than capital funds, and the FTEs that distance courses generate are beneficial to college budgets.

Technology issues. In general, few administrators other than project administrators addressed the specific technologies used in the project. Only one problem was mentioned--one distant campus cannot receive any of the videocourses via cable TV, and is anxiously awaiting a remedy.

Institutional & political issues. Administrators are becoming familiar with compressed video and two-way audioconferencing; they have held some college-wide staff meetings using that technology. All expressed enthusiasm for distance learning and a belief that technology is the future.

Cost/Benefit Issues. The cost/benefit of the Extended Learning Institute's distance learning programs is not discussed in specific terms. Rather, the institution seems to be outcome-oriented, believing that the benefits of increased access outweigh the costs. Since access is easily measured by simple enrollments, it is easy to quantify the benefits. In addition, administrators expect the development of new technology mixes in classes and the expansion of voice-mail and counseling video- tapes ultimately to serve campus-based classes, teachers, students, and staff. Thus there are perceived long-term benefits to the New Pathways Project.

Some of the real cost factors are not included in the Extended Learning Institute's budget and have apparently not been identified with distance learning; these include the costs for computing time, learning resources center staff, etc. While one administrator's jesting comments suggested there may be some competition for funds between the campuses and the Extended Learning Institute (the "sixth campus"), the base funding formula the college uses to set the Extended Learning Institute's budget reduces overt competition. Furthermore, since FTEs generated in the Extended Learning Institute are returned to the campus originating the faculty member, the benefits of the Extended Learning Institute accrue directly to the campuses through faculty allocations and students-per-faculty productivity. The present viewpoint is that the benefits associated with the Extended Learning Institute and the New Pathways Project outweigh any associated costs. Perhaps if more classroom space were available there would be less consensus about the benefits of distance learning. It is fortuitous that the Extended Learning Institute has been strengthened in a time of significant facilities needs.

The President believes the Extended Learning Institute degree program can serve as a model for, or be exported to, other Virginia community colleges through the Extended Learning Network. A French instructor gave a demonstration of the French in Action interactive videocourse, via satellite, to the state's Legislature last spring. That demonstration made newspaper headlines and generated state support for distance learning efforts. The Virginia Community College System proposal to enhance its distance education program was approved by the Legislature in spring '92 but not funded. The President's support of distance education, the Extended Learning Institute, and the New Pathways Project are important in creating the supportive political environment that appears to exist at Northern Virginia Community College.

Pedagogical and student support issues. These have been addressed earlier. In general, the administrators interviewed had little to add to the faculty, student, and staff discussion of these issues.

Greatest gains for institution. The institution's gains include the following:

- Access for students who cannot attend campus classes.
- FTEs which affect the college budget without making additional demands for classroom space.
- Improved instructional methodologies that will have impact on campus-based classes and services.
- Faculty renewal and re-engagement.
- Curriculum enhancement--the college's ability to offer a wider variety of courses that would be under-enrolled if offered on campus but which draw sizable enrollments as distance classes.
- Distance degree program--a new option to students important as access becomes more difficult.
- College leadership in the community and the statewide system by the dissemination of college distance education to other Virginia community colleges.
- Improved student services (videotapes and voice-mail), and the potentially pioneering use of computer-accessed databases for student research work.

FIRST VISIT SUMMARY

How well are the project goals being addressed in actual practice? The Extended Learning Institute and college administration and staff are working with commitment and enthusiasm toward achieving the project goals. The most work has been done to date on the integration and curriculum development goals. Program heads are in place, some faculty for the new courses are already planning their courses and technology mixes, and some issues already have been discussed BY the institution's curriculum committee. The voice-mail was being expanded just at the time of the evaluation, and an assessment of its effectiveness should wait until the second-year's

visit. Similarly, the production of the counseling video has not yet begun, although initial counselor meetings were held early in the spring semester.

What are the problem areas for the success of the project? The only potential problem area is staffing. Project staff admit that they might have done better to include more individual staff positions in the project. But they are used to working very hard, and the grant's funds for workshops have given them college-wide recognition that eases their work and provides some acknowledgment for it. No staff, faculty, or administrators see any real barriers to the project's success; and by all evidence available, there are none.

Do the administrators understand and support the project? The answer is a resounding "yes!" The President's enthusiasm, the Director and the Associate Dean's philosophy and behavior, and the workshop, including presentations by faculty leaders involved in the Extended Learning Institute, have created strong support for the project.

What will discourage the continuation of the project after Annenberg/CPB Project funding ends? If anything, the tight resources at the college will slow the progress Extended Learning Institute staff make. But at present, the institutional commitment and the faculty and staff evaluations of the Project Director and Associate Dean make significant funding loss unlikely.

How will this project have an effect on the likelihood of other institutions developing similar projects? The institution's links to other state community colleges through the system and its leadership of the Extended Learning Network may stimulate the export of project components to other colleges and universities in Virginia. Because the Project Director and the Associate Dean are both active in professional groups involving distance learning, they may serve as a conduit for further transfer of information outside the state.

Summary of Evaluation Outcomes. Since few of the new courses have been implemented, evaluation of the instructional design must await the next site visit. The systems for delivery, including the television studio, the classroom used for compressed video broadcasts, the current voice-mail, and computer-based instruction are working well. The Extended Learning Institute has sufficient experience in all of these delivery mechanisms, so they are now well tuned. The delivery mechanisms are indeed very effective; however, there are a few minor problems: some of the cumbersome menus used to access different parts of the computer conferencing system need revision, more capacity is needed on the hard disc of the voice-mail system, and one distant campus needs to gain cable access to videocourses.

The Extended Learning Institute and its funding, structure, and lines of authority in the college are well defined. The project has one organizational development goal--fully integrating the distance education and degree program into the college. One means of doing so, education and information dissemination, has been effectively demonstrated by the November workshop. The effectiveness of the other means, technology dissemination, remains to be seen at the next site visit.

Finally, the student support systems provided by bookstores, the learning resources centers, the technology systems for communication, and the Extended Learning Institute staff appear to be highly effective. Students report utter ease of use. Turn-around times seem quite satisfactory. Support systems are one of the most well conceived parts of the Extended Learning Institute program. The one exception, counseling, will be addressed by the project in the next six months.

Chapter 7

PROJECT BREAKTHROUGH

WEST VIRGINIA HIGHER EDUCATION SYSTEM

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GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. Project Breakthrough is a statewide telecourse delivery and student support network oriented toward adults in West Virginia. This statewide cooperative project is based on the combined efforts of several agencies:

- West Virginia Higher Education System with 16 public community colleges, colleges, and universities,
- West Virginia Library Commission with 178 libraries,
- West Virginia University Extension Service with offices in all 55 counties,
- Community organizations and volunteers statewide, and
- West Virginia Department of Education.

The grantee is West Virginia University Extension Service with the Project administrative function housed at West Virginia University (Morgantown). Institutions of higher education active in the project include (from southwest to northeast): Bluefield State College, Marshall University (Huntington), West Virginia State College (Institute), West Virginia Institute of Technology (Montgomery), West Virginia University at Parkersburg, Glenville State College, Fairmont State College, West Virginia University (Morgantown), Potomac State College of West Virginia (Keyser), and Shepherd College (Shepherdstown).

Dubbed "A Telecourse Model for the Mountain State," Project Breakthrough is designed to make college credit courses more accessible to adult learners by using satellite delivery and sound distance education. As reported in the original proposal, the physical and cultural setting of West Virginia supported the development of satellite-delivered courses for a number of reasons:

- The terrain, with its majestic beauty, comprises steep mountains and winding river beds which can hinder highway travel and information access. Many rural residents find secondary roads do not lend themselves to travel, especially during the winter months.

- West Virginia is the second most rural state in the United States based on the number of residents living in rural areas.

- West Virginia ranks last nationally in the number of adults who have a college education of four years or more. Of the approximately one million adults living in the state, only 10.4 percent have achieved a college education, compared to the national average of over 16 percent. To reach the national average, West Virginia needs to educate 65,528 adults with 4 or more years of college.

- The state also ranks last nationally in the percentage of adults with 1 to 3 years of college. The national average is 32 percent, compared to West Virginia's 20.4 percent.

- West Virginia ranks nearly last in population growth with a negative 4.1 percent population change from 1980 to 1987. Young people in particular are leaving the state for greater employment opportunities.

- Prior to the New Pathways funding, a year of developmental research and study substantiated the need and provided an implementation model specific to the needs of West Virginia. A major component of the model is the collaboration of higher education institutions, the West Virginia Library Commission, the West Virginia Educational Broadcasting Authority, the West Virginia University Extension Service, and various grass-roots organizations. The selection of the distance delivery technology had already been made in 1987 with the establishment of a statewide satellite delivery system known as SatNet.

Goals of the Project. The Project Breakthrough strategic plan consists of eight areas with specific objectives and actions: (1) programming and curriculum, (2) marketing, (3) research, (4) technology, (5) production, (6) support network, (7) policy, and (8) funding. The mission of Project Breakthrough "is to increase the college-going rate in West Virginia. Project Breakthrough's network will provide diverse educational access and student support through the higher education system, the WV Library Commission, the West Virginia University Extension Service, community mentors and organizations." Fundamentally, the goal is to provide access to college-level credit

courses to previously under-served, non-traditional, adult students using satellite delivery and sound distance education techniques.

To date the most significant accomplishments have been

- o the actual delivery of courses to students throughout the state,
- o the forging of tangible cooperative relationships with the public libraries throughout the state serving as downlink receive sites, and
- o the renewing of productive interactions among the higher education institutions to meet the education needs of the entire state.

Approach to Marketing. Marketing defines the task of this project. The strategic plan mentioned above illustrates a total marketing approach to the fulfillment of this project. Each of the components of the strategic plan contributes to the marketing and success of Project Breakthrough. More specifically, the administrative staff is charged with coordinating the multiplicity of tasks required to accomplish the mission. Two areas of concern focus these tasks: (1) product concerns (faculty, curriculum, courses, and so forth); and (2) consumer concerns (awareness, registration, receive site availability, and so forth).

One of the more useful results of the project has been the production and distribution of a comprehensive pamphlet compiling all of the "West Virginia Distance Learning Opportunities" in one handy descriptive reference guide. This pamphlet illustrates the Project staff understanding of the dual goals: increasing student access and enhancing cooperation and collaboration among public agencies in the states.

People Involved in the Project. The Project Director is Dean of Continuing Education at West Virginia University. The Associate Director of the Project formerly held the position of Director of Radio and Television at West Virginia University. The day to day running of the Project is performed by the Project Manager, who was previously associated with the College of Human Resources and Education at West Virginia University. Her doctoral work emphasized curriculum design, and she coordinated the student teaching program prior to joining Project Breakthrough. The Project Manager is assigned full time to the Project and is ably assisted by a full-time secretary, who commonly is the first contact by students who call in on the toll-free telephone line. The rest of the Project Breakthrough Administrative team includes the SatNet Director, a representative of the West Virginia Higher Education System coordinating body, and the internal project evaluator. The internal project evaluator is Director of the Survey Research Center and Chair of the Sociology Department at West Virginia University.

A representative from each of the public higher education institutions is designated as a member of the Academic Users Group (AUG). This group advises and facilitates both SatNet and Project Breakthrough. Because this project is statewide and multi-institutional, institutional representation is crucial on issues such as faculty selection, cross-listing of courses, and development of curriculum. This group meets monthly with project staff. All in all, the success of the project to date is related to the capability, enthusiasm, and commitment of the Project Manager and her staff. During the site visit, project staff received universal raves and accolades from students, faculty, and institutional representatives. It is absolutely essential for a project of this nature to have a staff who understands and performs well these necessary support, facilitative, and cooperative functions.

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Relationships. One of the key organizational relationships of this project is a continuing challenge and dilemma for West Virginia University. On the one hand, West Virginia University is responsible for stimulating, developing and securing funding for the Project; on the other hand, the success of the endeavor depends on the cooperation and active participation of many other institutions and agencies. The fear of "big brotherism" and misguided motivations is a constant concern and sometimes appears to get in the way of rational behavior. Fortunately, the staff at West Virginia University are sensitive to this dilemma and are constantly vigilant to minimize its influence. As time passes and success continues, it appears this attitude will subside. It is fairly clear that the students are oblivious to this subtle institutional posturing.

The more important relationships which appear to be working well include those between

- the project and students--students know about the existence of the program and are finding solutions to their individual problems;
- the project and libraries, which serve as receive sites throughout the state;
- the project and faculty, who receive essential support from the staff.

A long term relationship which needs to be continually nurtured is that between Project Breakthrough and SatNet. The distance of approximately 200 miles that separates the SatNet uplink in Institute (West Virginia State College) and Project Breakthrough's location in Morgantown may or may not be a concern for the future. The evaluator will gather more information on this issue prior to the next report.

The participating campuses and the program production and support services appear to cooperate well in providing support to the distant learners.

Student Support Structures. Student support systems appear to be working quite well. The project staff are responsible for promotion of the program. Initial inquiries tend to come into the project office on the toll-free telephone line. Staff immediately respond to questions about how the technology works, where is the closest receive site, and similar questions. Institution-specific questions are directed to the appropriate office at the institution. Students interviewed during this visit expressed a minimal need for traditional student support services. The primary need was convenient access to classes.

Faculty Support Issues. The faculty interviewed remarked repeatedly about the unusual additional support they have received for their Project Breakthrough courses. (At this stage of the project, six courses have been offered with four more coming up next semester.) They are pleasantly surprised and appreciative of this support. Faculty receive cash incentives; however, they appreciate most the additional clerical and production support they receive for offering their courses and improving their course delivery.

A general workshop is provided faculty to familiarize them with the project and the technology. Then the individual faculty member works with the instructional design and production support person at the originating institution. All of this is working well.

Staff Support Issues. Most of the staff support and development issues are handled at the local institutions and are reported by the Academic Users Group representative at the monthly meetings. Receive-site personnel are assisted by the project staff.

Cost Factors. Project Breakthrough has committed its budget primarily to administrative coordination and infrastructure development and has utilized other funding sources for other parts of the program. Thus, it is very difficult to isolate costs and analyze cost/benefits. The significant contribution of Project Breakthrough is to illustrate that there is an important and fundamental coordinating function that must be provided. Without this function, confusion and discouragement are highly probable. Another critical administrative function is identifying and developing complementary funding sources.

A cost factor of a different nature that will require further study and resolution is the matter of different course fees charged by each participating institution. At this stage of the project, it is not a major problem; however, it appears this could become a

problem, especially if coupled with inconsistent practices in mail-in registration and financial aid.

FACULTY REACTION TO THE PROJECT

Information About Interviewees. Two participating faculty were interviewed extensively. The professor of geography was just completing his semester long course, "Introduction to Physical Geography." The professor of education was in the final stages of preparing his course, "Introduction to the Information Processing Technologies," to be offered during the spring 1992 semester. Both of these instructors had previous experience in using technology enhancements in their courses. The geography professor had emphasized instructional technology in his undergraduate training and had done post-doctorate training in higher education administration. The education professor had been involved in several multi-year projects developing computer aided instructional techniques.

One of the significant strengths of Project Breakthrough has been the selection of highly respected and recognized quality faculty. Without exception, the faculty participating in Project Breakthrough are among the most outstanding at their institutions. They have won competitive teaching awards; they have been involved in other project work; and they exhibited a confidence in their own ability to overcome potential problems associated with the risks of statewide delivery of their courses. Faculty selection is certainly an important factor in the developmental stages of an innovative project. The extra effort required to entice quality faculty is worth it. Such faculty participation in the early stages provides credibility that will have long-term payoffs within the institutions and among the participating students. The entire group of faculty selected for Project Breakthrough have outstanding credentials.

Course Development Issues. Faculty are positive and appreciative of the additional support they have received in developing their television courses. The opportunity to work with instructional design and production staff has opened new doors in course development strategies. Many of the technical capabilities available in a television origination classroom are simply not available in conventional classrooms. The process also encourages the creative use of additional instructional aids such as video roll-ins and character-generated key words to improve the standard instructional format. The technical alternatives available stimulate thoughtful incorporation of powerful instructional aids.

Significant additional time is spent developing and adapting courses for a televised delivery format; thus, a substantial front-end investment in planning is required. However, the high-quality support staff reduces the burden somewhat.

Technology Issues. Faculty view the use of various technologies as an opportunity rather than a problem. This unanimous view may be characteristic only of the high-quality faculty currently participating.

The faculty maintained complete control of the instructional process. Both faculty and production staff seem sensitive to this potential concern. All of the origination classrooms accommodate on-campus students, so there is a live audience for each of the classes. Ironically, one professor indicated he did not feel as "connected" with his on-campus audience as he normally does. This phenomenon is worthy of further investigation.

Pedagogical Issues. Even though increasing student access is a primary goal of the project, improvement of teaching and instructional design is a significant outcome. The Information Technologies course, for example, will utilize a number of guest speakers. These guest experts will discuss specific applications; their presentations will originate from a variety of sites throughout the state. At least one-third of the class sessions will originate from different places in the state.

Additional/Summary Comments. Faculty quality and enthusiasm are a significant strength. Any potential negative impacts of technology-based delivery over distance are far outweighed by quality instruction. Certain faculty appreciate the opportunity to experiment, improve their courses, and develop themselves as better teachers. There is a sense of satisfaction in some faculty at being selected to participate in this high-profile project.

STUDENT REACTIONS TO THE PROJECT

Basis of Information. Two remote students were interviewed extensively. Each of them had taken at least 2 courses. This provided information on a total of 4 different courses. Both of the students had taken courses with at least 2 other students in each course and attempted to provide responses representative of all of those students.

One of the students received the classes at the local library, while the other student received classes at the home of a fellow student. They had no previous experience with technology-delivered courses, but had some experience with traditional college course work. The student reaction was universally positive, and on occasion, bordered on effusive.

Motivational Issues. The most common reason students gave for taking these classes is to continue and finish their education conveniently at their remote location. All of the students interviewed were located at least 30 minutes from the nearest college campus. With children at home and a full work schedule, they cannot possibly attend classes in any other way. Convenience was measured in both time and cost. In one case, the lack of reliable transportation was an additional discouraging factor to attend on-campus classes. This is the only way these students can take college level courses.

Technology Issues. The use and operation of the satellite receiver, videotape recorder, and talk back device were not a problem. In one case, the local librarian demonstrated the use of the equipment once and the students operated the system from then on. In another case, the local high school facilities were used as a receive site until the students determined it to be more convenient to meet at one of their homes. All technical questions were answered locally or by the project staff. The equipment did not intimidate the students nor did it discourage active participation in the class. The students felt that they were more attentive than usual.

Pedagogical and Evaluation Issues. The students are positive about their learning experience. They rate the faculty as very good and the courses as excellent. Compared with conventional settings, they reported comparable and equivalent involvement in the class, with slightly more effort on their part in the learning process. They felt they received the same grade in the class as they would have if they had been on campus. The technical quality of the video and audio was satisfactory. They appreciate the opportunity to take college level courses in their rural communities.

Special Support Issues. The administrative systems set up to support class instruction work extremely well. Students highly compliment project staff and local site coordinators for their effectiveness and efficiency. They found registration was easy, and they received text books and other instructional support materials in a timely manner. Testing procedures with the local librarian as proctor were not a problem. Interestingly, these students did not use available campus-based student support services.

Additional/Summary Comments. At one of the remote sites the student group developed a close-knit mutual support structure on their own. One of their members will miss the first one or two sessions of class next semester due to hospital confinement. The other students have already figured out how they will assist this individual and keep her caught up with the class work she will miss. This tendency for students in rural and distance-education projects to develop these informal support systems is not uncommon.

ADMINISTRATORS' REACTIONS TO THE PROJECT

Basis of Information. Interviews were conducted with the project staff, the Vice President for Academic Affairs at West Virginia University, the Director of Academic Affairs for the statewide higher education coordinating body, and academic administrators on two of the participating campuses. Each was well informed about the project and each had a somewhat different level of involvement. As expected, the administrators were much more sensitive to inter-institutional issues than were faculty or students.

Faculty Related Issues. The administrators realize the quality of the currently participating faculty and see it as a significant strength. No other faculty issues of significance were discussed in these interviews.

Technology Issues. Since the technology-mix decisions were made prior to the development of Project Breakthrough, there appears to be no question or controversy related to technology. It is refreshing to report that not even a hint of the old question, "Can students learn this way?" was encountered. One interviewee raised a concern about potential conflict between SatNet, the already existing technology provider, and Project Breakthrough. The nature of this relationship will have to be resolved.

Institutional and Political Issues. The focus of most of the administrator interviews was on inter-institutional relationships and political issues. Top administrators readily admit that the higher education institutions had previously expressed limited interest or concern about the non-traditional student and using distance education techniques to provide them access. In recent years, statewide discussions have focused these matters. Project Breakthrough has provided a stimulus to seriously address the issues of the under-served adult and technology-based delivery of education to all areas of the state.

Another realization is that distance education and satellite-delivered courses are expensive undertakings and can only be accomplished with considerable cooperation and sharing of support among the various institutions and agencies within the state. Agreements need to be forged and consistent policies and procedures need to be developed. The issues of concern are not technical or instructional, but political and inter-institutional. This realization has been profound; Project Breakthrough serves as a model for overcoming and resolving such issues.

Cost/Benefit Issues. It is too early in the project to develop reasonable cost/benefit equations. There is some question whether a true analysis will be possible by the

end of the project. Highly integrated and cooperative projects make it extremely difficult to isolate and allocate costs accurately. True and identifiable benefits are also difficult to evaluate in the short term, especially if the major benefits are intangible items such as attitude change, effective communication, image building, and so forth. However, Project Breakthrough provides a context and an opportunity for cooperation. The Vice President of West Virginia University noted that the registrars of all institutions got together and developed a universal registration process now in place throughout the state. This concrete result demonstrates the potential for cooperative activities. Things like this are hard to cost, but no one will deny their value.

Greatest Gains for the Institution. The administrators see significant gains already from Project Breakthrough. These are statewide in scope and encompass the stated project goals: increasing access to higher education and improving cooperation among institutions, agencies, and libraries.

Additional/Summary Comments. The administrators recognize the need to adjust the allocation formulas to support distance delivery mechanisms and other innovative instructional strategies. One cautioned that change which produces statewide and long-term impact is slow and frustrating.

FIRST VISIT SUMMARY

General Analysis of the Interviews.

How well are project goals being addressed in actual practice? Access to higher education experiences has been increased for the adult student living in rural and remote parts of the state. The primary reason for this increased access is the cooperation between higher education institutions and other agencies, specifically the state libraries. Project Breakthrough will make possible satellite downlink capabilities for all the state libraries.

What, if any, are the problem areas for the success of the project? An on-going problem is providing information and awareness of the project to potential students, and providing them encouragement and support to participate in the classes. Another problem relates to the development of trust and respect among the cooperating institutions and agencies, especially a profitable working relationship between Project Breakthrough and SatNet.

What is working well and why? The most significant aspect is the enthusiastic and committed project staff. The technology is functioning well; faculty are performing well; and the students have no complaints.

Do top administrators seem to have a good understanding of the project? Are they supportive? The level of understanding of the specifics of the project by top administrators around the state is surprising. They appear to be supportive.

At this point in the project, what do you think will encourage or discourage the continuation of the project after the Annenberg/CPB Project funding ends? The most tangible influence for continuation will be increased student enrollments in the courses and persistence of those students to finish degrees. Also encouraging will be the recognition among the cooperating institutions and agencies that the benefits of cooperation and coordination are many and valuable. If enrollments do not continue to increase, the program could be in jeopardy.

How will this project have an effect on the likelihood of other institutions developing similar projects? First, it should be clear that matters of technology and technology mix are not fundamental. Much more significant are the factors of quality instruction and highly motivated learners. Finally, this model illustrates that you must have support for administrative coordination and the development of infrastructure within an existing system.

Summary of Evaluation Outcomes.

- **Instructional design effectiveness.** The selection of quality faculty is the fundamental ingredient. Providing capable and committed production and staff support enhances effectiveness. All of the faculty have used this opportunity to improve their courses. All of the courses utilize a variety of instructional enhancements.

- **Instructional delivery effectiveness.** The delivery of a televised class via satellite has proved to be very effective. The origination equipment and receive equipment are relatively simple to operate and are highly reliable. One-way video and two-way audio have proved to be effective.

- **Organizational development.** The effectiveness of the organizational development effort is exemplary. This primary goal of the project has been achieved to a high degree. The project is well organized and has encouraged the development of cooperative and coordinated organizational structures throughout the state.

- **Effectiveness of support systems.** The support systems within the project are very effective. Faculty, students, site coordinators, staff and others associated with the project give high marks to the quality and effectiveness of the support systems associated with Project Breakthrough.

Chapter 8

ENHANCED ACCESS TO LEARNING THROUGH TECHNOLOGY

ROCHESTER INSTITUTE OF TECHNOLOGY

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GENERAL INFORMATION ABOUT THE PROJECT

General Institutional Information. Rochester Institute of Technology (RIT) was founded in 1829 and since 1912 has been a pioneer in career-oriented education and cooperative education. RIT has more than 3,000 cooperative educational students.

RIT is a co-educational, privately endowed institution currently enrolling over 13,000 students, supported by 2,400 staff and more than 1,000 full- and part-time faculty. RIT awards everything from a Certificate to the Ph.D. Academic units include Applied Science and Technology, Business, Continuing Education, Engineering, Fine and Applied Arts, Graphic Arts and Photography, Liberal Arts, the National Institute for the Deaf, and Science.

Located in Rochester, New York, RIT has a main campus located on 1,300 acres and an additional campus in downtown Rochester. While most of RIT's students come from the surrounding area, increasing numbers are from outlying areas, including greater New York State. To serve its students' needs, RIT currently serves 4,200 part-time students by offering evening, Saturday and shift-mode schedules, and day-long courses in an alternate-Saturday weekend college format.

For the ten years prior to the New Pathways award, RIT has offered credit and non-credit courses using distance learning technology. During that time, some 5,500 students have enrolled in credit telecourses. RIT now offers 30 classes to nearly 1,000 students per year. Beginning in the fall of 1991, RIT offered for the first time a Bachelor of Science Degree in Applied Arts and Science from the College of Continuing Education. Made possible through the Annenberg/CPB New Pathways award, the B.S. degree includes 40 upper level courses to meet degree requirements.

Goals of the Project. As with several other of the Annenberg/CPB New Pathways institutions, RIT intends to build on existing distance education programs such as the Applied Arts and Sciences program noted above. The distance education program will continue to serve a large number of its students from the localarea and a smaller

number of full-time enrolled students on campus and will expand service to several hundred students from western New York. Indirectly, the grant will provide increased visibility of RIT as a distance education provider and will attract students from a wider geographic area. On a map of the United States, the RIT Office of Distance Education places pins representing RIT distance learners. There are several small but very widely dispersed groups of students including some in New Mexico, the home state of the evaluator. The New Pathways grant allows for expansion of the current program to attract more students from areas remote from RIT.

The goals of the project relate directly to the existing distance education program. Since late in 1986, RIT has offered an interdisciplinary program in Applied Arts and Sciences which is administered by the College of Continuing Education, a separate degree-granting college of RIT. Students may matriculate from the program at three levels: diploma, A.A.S and Bachelor of Science. Prior to receiving the New Pathways grant, RIT had most of the core courses for this degree program available in a variety of distance technologies, including the following:

- Video--
  videotape (purchased and developed locally),
  broadcast over local PBS affiliate;

- Audio--
  audioconferencing,
  speakerphones for groups;

- Audiographics--
  fax machines,
  telewriter,
  picture phones;

- Computing--
  electronic mail,
  conferencing,
  online testing,
  access to campus resources such as the library.

The New Pathways grant meets an expressed need of current students and a desire of RIT to extend the number of upper division courses available to distance learners while also offering for the first time courses in this format for professional concentrations. Thus, RIT has announced that beginning this past fall semester (1991), students may now earn a B.S. degree in Applied Arts and Sciences entirely

through distance education. While not all of the courses are yet available this way, the handout to students shows that by the summer of 1994 this will be the case.

In terms of technology mix, while no new technologies are being proposed, RIT will enhance their current delivery systems in several ways:

- o Increase access to the RIT computer network, through hardware and software purchases;
- o Increase the number of RIT-produced video resources;
- o Lend videotapes, in the same way we lend books;
- o Improve course administration, with computer management software;
- o Establish sites for greater use of telewriter and fax machines; and
- o Purchase more picturephones.

Approach to Marketing. RIT will not market the program enhancements made possible by the New Pathways grant separately from their ongoing distance education program. The present marketing strategy is comprehensive and well established, involving coordinated effort between the Office of Distance Learning, Office of Part-Time Enrollment, and the College of Continuing Education. The Office of Distance Learning has a formal marketing plan which is shared with the institution through the Part-Time Enrollment Advisory Group with representatives from each of RIT's colleges.

The marketing plan consists of advertising and direct-mail, the latter used to deliver a mini-catalog of courses, financial aid information, and so on. Prospective students outside the Rochester area can access information with a toll-free number, and all inquiries are incorporated into a database from which an appropriate marketing response is developed. This can range from general information to personalized letters from various institution officers and department chairs. The toll-free number and mini-catalog are direct results of the New Pathways activity.

People Involved in the Project. Distance learning at RIT is a coordinated effort, and while no new institutional arrangements exist as a result of the New Pathways program, the grant does allow RIT to add several staff to various ongoing roles in advisement, video production, and associated support roles. Since distance learning at RIT pervades the institution, it would be possible to list several score of individuals involved in the process. The following list of persons having

responsibilities with the distance learning effort will give the reader a sense of this pervasiveness:

Director, Office of Distance Learning
Director, Office of Part-Time Enrollment Services
Dean/Associate Dean, College of Continuing Education
Dean, College of Business
Dean, College of Applied Science and Technology
Dean, College of Science and Liberal Arts
Director, Information Systems and Computing
Director, Instructional Media Services
Dean of the Library
Director, Learning Development Center
Director, Office of Financial Aid
Associate Vice President, Academic Services and Computing
Operations Supervisor, Office of Distance Learning
Program and Market Developer, Office of Distance Learning

ORGANIZATIONAL REACTIONS TO THE PROJECT

Internal Organizational Relationships. As indicated above, no new organizational relationships exist as a result of the New Pathways program. Organizational relationships which support distance learning at RIT are characterized by a principle of "single point of contact," echoed consistently throughout the institution.

The principal unit responsible for the single point of contact at RIT is the Office of Distance Learning. This unit evolved from the old Telecourse Office but today handles the coordination of many facets of distance learning for RIT students and faculty. This unit coordinates many aspects of distance learning. Somewhat surprisingly, no cross unit committee for working with common operational distance learning issues exists on the campus.

The other units with which this Office primarily interacts for distance learning include Instructional Media Services, Wallace Library, College of Applied Arts and Sciences, College of Continuing Education, and Information Systems and Computing. The Office of Distance Learning also interacts with other college Deans and faculty as necessary.

As indicated above, no new organizational relationships were created as a result of the New Pathways program. However, existing organizational relationships between the above units have been enhanced by the award. From the most senior

administrator to the staff in the trenches, one theme emerged: the New Pathways project has increased the visibility and the credibility of the distance learning effort.

Student Support Structures. No new student support structures were created as a result of the New Pathways award. The award did (or will) result in direct increase of student support--by adding staff in areas such as advisement, instructional media services, and support staff in the Office of Distance Learning. These support service increases are spread across four tasks: course development, enrollment management, site development, and course delivery.

The key element in the distance learning support structures at RIT is best expressed in a statement from the director of the library who said that her goal is to support distance learning students at the same level as on-campus students. To do this, the library offers an online catalog and is looking into offering full-text materials. Distance learning has placed greater emphasis on the library as a service, rather than a place.

Instructional Media Services was able to add student help and some equipment as a result of the New Pathways project. As a support service they offer the full range of resources from pre-production to broadcast. Faculty with experience in video are used to train novices. When faculty work through the Office of Distance Learning they have fewer problems. For example, this office is expert on issues of copyright and distribution of programs which occasionally cause confusion among the faculty.

The advising staff has felt the impact of the New Pathways program because of a greater number of inquiries and enrollments. This has helped them improve their on-site advising skills, including using new technologies. The office of advising generally works through the Office of Distance Learning but occasionally with the Admissions Office or Office of Part-Time Enrollment.

Faculty Support Issues. There appears to be a surprising lack of concerns about support issues. One reason for this is the apparent plethora of resource support areas for faculty wanting to teach using distance learning. Faculty can receive assistance on virtually every phase of the process, from the bookstore's help in getting materials out to students to Instructional Media's providing assistance on video production.

Two support issues noted were (1) faculty have had problems creating computer accounts for their students, and (2) students have had trouble getting help for computer problems at odd hours or on weekends.

Staff Support Issues. There are no issues in addition to the student/staff inter-related issues discussed above.

Cost Factors. At RIT there is no separation, at any level, between the ongoing distance learning program and the New Pathways project. The latter folds neatly into the former by allowing for an expansion and enhancement of the current program. Several support staff, some part time, have been or will be added in various areas of distance learning; these costs are directly reflected in the proposal budget. It is not possible to separate out the New Pathways project costs for distance learning from other distance learning costs.

There does not seem to be an auditable cost record of providing distance learning, at least not at the course level. This situation probably is not uncommon, for at RIT there are a large number of cost centers associated with distance learning and these centers function to provide a great number of services whose complexity make such a cost trace extremely difficult. The fixed costs associated with specific courses are available, but these figures are generic and cover such items as phone, postage, and the like.

In talking with the Director of the Office of Distance Learning, it becomes clear that RIT chooses to focus on need and demand of services rather than cost. While noting that cost is indeed a consideration and a factor, the overriding concern is with how to best deliver a course. So, cost is not really a deciding factor in the choice of technology or in the course chosen to be delivered over a distance. As will be discussed further in this report, a key element in determining the success or failure of distance learning at RIT is enrollment. Within reason, cost is secondary to the determination that course enrollment has increased because of distance learning. There is also a felt need that distance learning courses must be offered even if they are not cost effective. This attitude is clear in the following quotation regarding statistics; one interviewee said: "Statistics isn't cost-effective to offer, but we have to offer a math class."

There is a clear distinction between cost as related to the decision of which technology to use for a specific course and costs as related to enrollment. The former involves cost at the instrumental level of the faculty member teaching the course and the appropriate involvement of various support structures such as the Office of Distance Learning. The latter, on the other hand, involves cost at the strategic level of concern to the senior administration of the institution. Within common sense reason, instrumental costs are governed by the practical need to deliver course material using distance learning technologies. At the strategic level, <u>all</u> costs associated with distance learning at the institution are related intimately and need to be monitored.

FACULTY REACTION TO THE PROJECT

Information about Interviewees. Teaching faculty were interviewed in the following areas:

- Telecommunications (College of Applied Arts and Sciences),
- Management Concepts (College of Business),
- Black Civil Rights and Modern American History (College of Liberal Arts),
- Introduction to Programming and Program Design and Validation (College of Applied Arts and Sciences),
- Human Communications, Persuasion (College of Liberal Arts),
- Various mathematics courses (College of Science),

Course Development Issues. The discussion of course development issues gave the impression that course development issues perhaps ought to be, but are not, distinct from the technology issues. If course development issues include what motivates faculty persons' decisions to teach using distance learning methods, RIT faculty offer some interesting examples. One professor said her experience using distance education in the private sector convinced her it provides a positive experience; her challenge was to replicate those experiences in an academic environment. Another said that he became involved through being a part of a team-teaching experience where his partner was using distance learning methods. But the most interesting comment was that involvement was through watching a role model. As an example, RIT has a professor who is internationally recognized for his work in distance learning. This professor serves not only as a role model but actively participates in the apprenticeship of younger faculty curious about distance learning.

There are other issues related to course development and recruitment to distance learning. A very significant point raised was that the institution places a high priority on distance learning and that, consequently, participants in this endeavor stand a good chance of receiving summer money for course development and learning the technology. Indeed, RIT provides "Provost's Productivity Grants" for the faculty, and an explicitly stated top priority is distance learning. However, when pressed on this grant as being an incentive for becoming involved with distance learning, they were unanimous in saying it was insufficient by itself--that to be successful, the professor has to have other reasons.

Another reason given for participation in distance learning is the opportunity to be involved with a wide variety of technologies, some of which otherwise would not be available to the faculty, e.g., production and broadcast of video.

The only negative comment on course development concerned a lack of understanding of the personal resources required to become involved in distance learning. This lack is manifested in several ways but most clearly in the reluctance in promotion and tenure decisions of academic administrators to count involvement in distance learning the same as publications.

Technology Issues. Technology mix decisions are made by the individual faculty member with advice from several sources including the Office of Distance Learning, Computing, and Instructional Media. In the end, the more commonly voiced remark is that a faculty member should use as many technologies as possible to maximize student involvement.

Pedagogical Issues. There are tradeoffs between traditional and distance learning techniques. The first is that many RIT students taking distance learning courses are older. The faculty agree that these students perform better and are more self-motivated. Students mentioned the second: Distance learning allows for greater flexibility in doing homework and taking exams; however, this flexibility can be the student's downfall if he is not sufficiently self-motivated and disciplined.

Other pedagogical points are quite interesting. One faculty member mentioned that the better technologies to use are those that promote student interaction and that video is not good for this objective. Additionally, a department chair remarked that once a teacher becomes proficient in using a distance learning technology, it is just as possible for him to get into a rut as it is in any other method of teaching.

In the area of assessing achievement, faculty are not using radically different methods than in traditional classes. Two items are deserving of mention: First, several faculty who use distance learning methods say they place more emphasis on student interaction when assigning grades. More interesting is the observation that as a result of his teaching a distance learning course one faculty member transferred to his traditional classroom a technique which has worked well of closely monitoring student progress.

When asked about the relationship of student proficiency with a technology and grades, faculty agreed that proficiency does not necessarily predict grades. The only case in which technology proficiency might be a determining factor is that in which a student is required to use something like word processing as a part of the class.

Additional/Summary Comments. In summary, several faculty made a point: RIT's stated objective is for distance learning students to be treated as any regular student; that is, distance students should not feel as though they are being treated differentially. However, faculty noted the need for institutional philosophy to change to insure that teaching distance learning students is regarded the same as teaching full-time, resident students. Also, there is a need for department chairs to view the teaching of a distance learning course as the same as teaching any regular course; many chairs view teaching distance learning courses simply as an overload course.

STUDENT REACTIONS TO THE PROJECT

Information About Interviewees. Because of the timing of the trip to RIT, it was very difficult to arrange meetings with students. Face-to-face meetings proved unworkable, so an audioconference was held with five students who had taken or were taking the following classes: Management, Calculus, Health Systems Administration, Communications and Business, Biology (taken in the traditional manner), and Statistics. Their previous experience with distance learning ranged from no courses to several courses.

Motivational Issues. Motivational issues are intertwined with other factors in determining why students take distance learning courses. These remarks are prefaced with a note that the students interviewed knew virtually nothing about the New Pathways program. The motivational factor which was most frequently mentioned is the most obvious: distance learning courses meet students' need for flexibility required by work schedules. In fact, at least one student said she would take a course in the traditional manner if it fit her work schedule and was not too far from where she lived or worked. Another student noted she could take the course on campus, but uses distance learning technologies because it gives her greater convenience.

One of the more detailed responses was that of a student who took courses in psychology and statistics through distance learning. He believes this method of teaching is superior to traditional methods because, unlike in the on-site classroom, students are not able to dominate a discussion, homework completion is more flexible, and greater interaction with the professor is possible. This student's courses used a combination of computer and audio-conferencing.

Pedagogical and Evaluation Issues. All of the students felt there was no difference between distance learning and traditional learning styles because the grade is determined by the effort of the student. One interesting point made was that distance learners get higher grades (empirically un-verifiable) because this method of

learning requires greater discipline and harder work. On the other hand, several students emphasized that this is true only if the course is "done right," meaning that the professor can design a course for distance learners which challenges them or can design just the opposite.

While RIT now offers a complete degree through distance learning, several students remarked that still more courses are needed. They specifically mentioned courses in business. The College of Business has been reluctant to participate in the distance learning program; however, one faculty member of the College said this attitude is changing.

Technology Issues. Students had relatively little trouble and do not see technology as an obstacle to their learning. The only problem mentioned was that students in the statistics course needed more electronic blackboards and picture phones. One student mentioned that while she initially experienced trouble logging onto the computer, she was provided with documentation and phone consulting, both of which resolved her problem.

Special Support Issues. Students gave very positive feedback. RIT's Office of Distance Learning has very good working relationships with key resource departments--the bookstore, library, and computing center. Several students mentioned that before their distance learning class began they received by mail their book, syllabus, and related materials. During the semester they were able to search the library's online catalog and other remote libraries.

ADMINISTRATORS' REACTION TO THE PROJECT

Basis for Information. The following administrators were interviewed about the New Pathways project:

Associate Vice President, Academic Services and Computing
Dean, College of Continuing Education
Director, Instructional Media Services
Dean, College of Applied Arts and Sciences
Director, Office of Part-Time Enrollment Services
Director, Wallace Memorial Library
Director, Office of Distance Learning
Associate Dean, College of Continuing Education
Director, Information Systems and Computing

Faculty Related Issues. Faculty issues centered around two areas: incentives and performance. With regard to incentives, while RIT has a well-developed distance learning program, they have yet to resolve a problem central to all faculty everywhere participating in distance education: Why should I do it? In the discussion, it was not easy to separate incentives from performance. The incentives discussed were flexibility and finances. One dean said that his faculty participate in distance learning for some of the same reasons as students, namely, that they have freedom from place and time to conduct their course. The more critical issue involves the remuneration of faculty for teaching a distance learning course; RIT currently pays faculty a flat fee based on an overload schedule. Several deans admit that there should be remuneration for course development and that this proposed practice is under review. One very interesting comment came from a dean who said that incentives must be greater for course development than for delivery. He remarked that his college often hires adjunct faculty for the delivery because permanent faculty do not find delivering distance learning attractive.

The question of faculty performance raises the historical problem of determining if distance learning courses should be evaluated the same as traditional courses. At RIT they are. However, for promotion and tenure, involvement in distance learning is seen as service within the trilogy of research, teaching and service.

Support for faculty in development of technology based courses is not deemed to be a problem. Many institutional resources are available to faculty for this purpose.

Technology Issues. Administrators agree that the choice of technology is left to the faculty member, but expensive choices are referred to the department chair. In the Master's Degree program for Telecommunications only, the faculty's decision on technology choice irrespective of cost weighs more heavily.

Institutional and Political Issues. Institutional and political issues revolve around a theme heard numerous times--enrollment. Regardless of the hyperbole surrounding the benefits of distance learning for the students and faculty, in the end the success of distance learning for RIT is whether or not use of it increases enrollment. No matter how technologically advanced a course, no matter what the students' evaluation of the course, if it does not increase enrollment for the institution its future is in jeopardy.

Cost/Benefit Issues. As indicated before, RIT does not treat a New Pathways course differently from other distance learning courses, so the cost of offering a New Pathways course is unavailable. However, of the costs associated with distance learning, one dean said that distance learning course support is seen as a departmental responsibility and if enrollment for the course is high the support will

be high. On a larger scale, the Associate Vice President sees distance learning moving toward a self-support status with its own operating budget. Currently, tuition money and some internal reallocation of funds are used to support distance learning operations and equipment.

Individual courses selected for distance learning depend to some extent on cost. In the engineering area, course selection is determined more by need than by cost. In education, however, where cost is a function of both the purpose and the level of the course, a dean remarked that in the past his college focused on lower division courses because they were cheaper.

In implementing distance learning at RIT, the greatest barrier thus far has not been budget or support but how to implement required laboratory courses.

Greatest Gains for the Institution. When asked about how they would evaluate the success of the New Pathways program, those interviewed preferred to answer the more general question of the success of distance learning. The discussion focused on process versus outcome criteria. One dean said that while a comprehensive learning-outcomes approach with pre- and post measures was desirable, there is no support for this with the senior administration. This process/outcome approach is being attempted in the health administration degree program.

Other deans and the Associate Vice President chose to interpret the question of measuring success Socratically. They asked questions such as: Is enrollment going up or down? Are distance learners learning as well as regular students? Will the New Pathways program impact or encourage other deans to participate? And, Has the quality of service to all students improved? The answers so far are positive.

FIRST VISIT SUMMARY

General Analysis of the Interviews. While the above discussion paints a complex environment in which distance learning takes place at RIT, the fact remains that the New Pathways project goals are being accomplished. For instance, a marketing plan has been devised, the 800 phone number has been implemented, the mini-catalog of distance learning courses has been produced and distributed and the audio bridge capacity has been expanded. Other areas of accomplishment include improvements in degree management and course development materials. My impression is that while some of these were accomplished because of available grant funds, a more important success is the sense of pride and credibility the New Pathways award brings to the campus. The visibility of the distance learning program has increased substantially as a result of the New Pathways program at RIT.

Problem areas for the remainder of the New Pathways program relate less to specific objectives like those mentioned above. Challenges are seen in other things:

- Offering a greater variety of courses.
- Dealing with persistent faculty issues. The technology is there; most of the infrastructure is there; but the academic issues of incentive, promotion, tenure, and salary remain.
- Securing the involvement of other deans and departmental chairs who have not to this point participated in distance learning.
- Finding methods to persuade more administrators and faculty to participate. Perhaps this will be driven by the enrollment need. If traditional courses do not have high enrollments but distance learning ones do, the message may be participate in distance learning or see your resources diminish.

There is no doubt that the efforts begun by the New Pathways program will endure. RIT is institutionally committed to distance learning and the New Pathways program has brought about an enhanced public awareness of this effort. The only factor which might negatively affect distance learning at RIT is enrollment.

Chapter 9

FIRST-YEAR CONCLUSIONS

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INTRODUCTION

In these conclusions, we have not attempted to revisit or distill the unique qualities of each project. A summary of the progress of the projects during the 1991-92 school year is found on the chart on the follow pages. If the reader is interested in details of marketing, project management, specifics of delivery sites, or other information not found in the chart, these are amply covered in the individual project reports. In this chapter we deal with generalizations that describe the broad scope of the New Pathways to a Degree Project, and items that will help us define the directions we wish to take in the next year of this evaluation.

ACCESS AND FACULTY RENEWAL

The Annenberg/CPB Project did not create these projects; rather it teamed up with projects which share its visions of access for students and renewal of faculty. These institutions are delivering education to individuals who do not come to the campus. In Maine, Oregon, and West Virginia, students are hindered by geography—miles, mountains, and weather. In Indianapolis, St. Paul, and Northern Virginia, they are hindered by situations: barriers of confining personal situations (family responsibilities, age, physical handicaps), and barriers of culture, of traffic, and of pace of living. The distance delivery tools used by these projects enable others to reach out to remote communities as well. For example, in Oregon the Governor successfully used the same tools used by the New Pathways Project to convene a remarkable statewide citizens' meeting to address and invite input on pressing financial issues facing higher education and all of Oregon's residents.

In addition to reaching out, these institutions also see the New Pathways Projects as instruments for faculty renewal. Faculty are content experts; they know their stuff. But teaching involves communicating what they know. The technologies create opportunities for faculty to rethink content and make new decisions on how to present content. The most radical projects are using cutting-edge technologies. The College of St. Catherine's is developing computer-based materials (HyperCard) to be

Institution or Agency	Number of Remote Sites	Types of Remote Sites	Number of Classes 1991-92		Number of Enrollments 1991-92	
			NP Classes	All Distance Learning Classes	NP Classes	All Distance Learning Classes
Oregon State System of Higher Education	3	College centers	5	24	67	234
College of St. Catherine	0	n/a	0	0	0	0
The University of Maine at Augusta	81	Public school site, college site, corporations	11	80	565	6,625
Indiana University - Purdue University, at Indianapolis	6	Community centers, college centers, corporate centers	2	39	17	627
Northern Virginia Community College	4,000	Students' homes	7	174	131	8,199
West Virginia Higher Education System	29	Library centers, college centers, public education centers, hospitals, and students' homes	6	38	400	3,252
Rochester Institute of Technology	2 (220)	College centers (students at home)	11	40	220	780

Technologies		First Year Highlights of Project
Used in All NP Classes	**Used in Some NP Classes**	
Print, Live two-way compressed video or one-way video/two-way audio	Electronic mail	The New Pathways project encouraged the higher education system to develop specific policies and guidelines to address interinstitutional issues in distance learning. Faculty development and student services needs were identified and programs were developed to meet these needs. Students in rural areas in Oregon are beginning to have access to high education resources.
Print, application software (hypertext), computer conferencing, electronic mail, fax, and audio and video tapes		Developing a home-based computer mediated communications degree program from scratch. Faculty have learned the technical skills and have applied them in an on-campus setting. A new distance learning paradigm has been created on the campus.
Print, one-way video/two-way audio	Voice mail, audioconferencing	Faculty and staff development was the focus of this project and has been the catalyst to bring together a core of people to share concerns and ideas. Learning to use the technologies has been the vehicle for faculty to re-examine appropriate instructional design practices. The focus on the needs of remote students has caused the rethinking of on-campus policies and procedures.
Print, broadcast video, videotapes, voice mail, fax, electronic mail	Videodisc, application software	The NP project integrates available technologies and peer mentoring for underserved students. NP faculty are rethinking methods of teaching. University support services are being modified to meet the needs of economically disadvantaged, African-American and Hispanic students.
Print	Broadcast video, videotape, voice mail, computer conferencing, live two-way compressed video, application software, audio conferencing	The NP project provided the capability for 5 campuses of the college to meet together for the first time in 17 years and chart the degree program capability for distance learning. NVCC has refined and fully developed new applications of voice mail for instructional and administrative purposes. NVCC has developed access to Learning Resources Center materials and counseling services.
Print, live one-way video/two-way audio, voice mail	Videotape, electronic mail, fax, computer networks	The New Pathways project has promoted high levels of cooperation and participation among the higher education institutions in West Virginia. New collaborations among colleges, public education, public television and state libraries have developed. The project has linked outstanding faculty and students in convenient ways.
Print, videotapes, broadcast video, computer communications, audio conferencing	Application software, computer testing, picture phone	The NP project has allowed RIT to offer full baccalaureate degrees to students in their homes. The combination of technologies permits full interaction with university resources.

delivered over a wide area computer network. Computer networks play a part in most of these projects--largely used for submitting course assignments and for teacher/student communication. But even those projects using the more traditional TV courses take advantage of sophisticated production methods and technological innovations to ensure that students get the most from their education. Projects have invested in professional course designers to assist faculty in preparing their courses. As a result, faculty are changing, and the technology is an instrument for faculty renewal.

On their way to these goals, sometimes by chance, institutions enjoy important spinoffs. Maine and Northern Virginia are finding that they are able to serve students for whom they have inadequate physical plants, so the costs of using alternative space may offset production and delivery costs. Maine has created a new institution, the Community College of Maine, embedded within existing institutions but separate, and serving in entirely new ways citizens not previously served. Oregon has used Oregon Ed-Net and the related New Pathways courses as an opportunity to consider statewide education policies on distance learning and has wondered if there might be advantages to creating a statewide distance learning institution.

IMPROVING DISTANCE EDUCATION

These projects address common misgivings about distance education--that it lacks quality, rigor, commitment to students, relevance. Indiana University-Purdue University of Indianapolis has successfully delivered one of the most demanding New Pathways courses, a core-curriculum course in laboratory chemistry. At the time of the evaluation visit it was preparing its second course, Finite Mathematics. The other projects are undertaking similarly rigorous courses. Students in all projects believe that their experience is equivalent to or superior to that in on-campus courses. In some cases the immediate access to the professors provided by electronic devices--computer networks, electronic mail, voicemail, faxes--is better than on-campus communication because it is more often one on one. These courses require of students more self-discipline and independence; at the same time, discipline may be more a part of the lives of the students who take these courses--older students, family persons, more involved in "real life" than typical undergraduates, professionals. All of the projects take seriously the task of supporting students; some set a goal of treating off-campus students just as they treat on-campus students. Students, as a result, find little fault with their treatment. Finally, in answer to the question of relevance, we can take the case of Oregon Ed-Net, which is delivering a BA in Nursing to nurses in rural Oregon through the New Pathways project, as but one example of the social and academic relevance of these programs.

Positive results from the New Pathways Projects are probably guaranteed by the faculty selection process. These projects have deployed the "A" team. Institutions have made efforts to enlist their best teachers. In some cases, statewide or institution-wide committees have made group decisions about who will teach. Most projects have used modest cash or working-conditions incentives for faculty, but faculty unanimously agreed that these incentives, while helpful, are inadequate to motivate them. The real motivators are intrinsic. These faculty enjoy the technology. They are challenged by the demands of distance delivery. They respond to the opportunity of rethinking their material. They like being part of the vanguard.

Faculty are challenged by the support resources provided them. Traditionally, faculty do not prepare course materials in collaboration with anyone. A professor could conceivably teach for an entire career without ever being audited by a colleague, so working with professional production consultants is both challenging and stimulating. Faculty feel amply rewarded, not by the cash or privilege incentives, but by the experience itself. Some value the interaction between their off-campus and on-campus students (frequently electronically connected). They value the older students who enroll off campus. Some faculty work harder at knowing their remote students, which probably produces its own rewards. All of this raises a concern whether there is an adequate supply of such superior faculty to follow in these large footsteps.

NEW AND DIFFERENT STUDENTS

These projects have brought in a new set of students. The following comments about students are preliminary; they will be verified in the subsequent reports. The New Pathways projects are serving students outside of or on the fringe of traditional higher education populations--time-bound, place-bound, older, or confined by family, work, or inadequate resources. Even some traditional students are using the New Pathways offerings to help solve a specific problem of filling a schedule or getting to a course. Very few students have difficulty with the technologies used. Contemporary experience with electronic gadgetry must be adequate training. In fact, students often articulate advantages to remote delivery overlooked by their teachers: they like being able to review (view again) lectures which they missed or failed to fully understand. They know that they get one-on-one time with their professor when they send and receive electronic mail, voicemail, and computer-delivered assignments. Some contend that this communication is superior to student-teacher communication in traditional settings. One student at Rochester Institute of Technology told the evaluator that even though she lives very near the campus, she prefers to take courses using distance learning methods. According to her, the distance learning classes were superior to the traditional on-campus classes and she "learns a lot more" in the remote class. The students recognize that these courses require discipline on their parts. They are critical of faculty who are

pretentious (i.e. like TV talk-show hosts), or who do not take advantage of the interactive capability of the technology to engage their remote students. The preliminary results from projects which seek students who would not otherwise enroll in college show promise of success.

The performance of these students is not very different from that of their peers taking traditionally taught classes. Teachers in all projects confirmed this. The students demonstrate character traits and behaviors that all teachers value in students--independence, self-motivation, commitment. This confirms previous evidence comparing students learning at a distance with those in face-to-face environments. Differences are usually slight and tend to indicate that the distance learning students perform a little better. These differences are usually understood to result from the remote students' being older and more motivated than are traditional on-campus students. These types of comparisons have been going on since 1939 when radio was used as an instructional medium. The overwhelming majority of reports examining student performance support the notion that students can learn equally well from conscientious teachers in either face-to-face or remote learning environments (Johnstone, 1991).

The Indiana project targets a population different from students who tend to come to the Indiana University-Purdue University of Indianapolis campus, which makes this type of on-campus/off-campus comparison meaningless. We have to look at the performance of these students in a different way; their performance is an effect of the New Pathways Project's support procedures which are effectively keeping these students on track; they are succeeding and show promise of becoming the degree-students the program seeks. The ultimate outcome measure is that students complete their educational goals, enabled by an institution working within the framework of its mission.

THE STUDENT SERVICES THRUST

Most of these projects have repackaged and extended common student services to New Pathways students. Several projects are using toll-free telephone services for student inquiries. For example, at Northern Virginia Community College the New Pathways students can get answers to support services questions by telephone. A group of specially trained people are available to clarify registration procedures, assist with student/faculty interactions, and help solve difficulties with the technologies used in the courses. In West Virginia, a secretary serves this function. The Indianapolis program sends support staff to its nearby, off-campus centers. Oregon has a goal to provide services to distant students that are comparable to services for on-campus students. We speculate that services contribute significantly to student satisfaction; we intend to pursue this question systematically in the next interviews.

ADMINISTRATIVE SUPPORT

One very important aspect of all of these projects is that they enjoy the support of high-level administration. In many cases the project vision is articulated by the institutional leadership. This vision is pragmatic--technology can generate additional tuition revenue, distance education can help fulfill or extend the campus' mission, expand the market, stimulate faculty, revitalize curriculum, serve students that would not come to the traditional classrooms, and so forth. These pragmatic concerns may provide the best outcome measures.

UNANTICIPATED OUTCOMES

There are surprises. Two systems are realizing that distant students don't require campus space. That may mean increased numbers of students at a lower cost per student. This needs further study. Turf issues change with these projects. On the one hand, because they transcend traditional boundaries, many projects have brought about surprising collaborations and important cooperation, mentioned above. On the other hand some projects have uncovered potential new turf issues between distance education organizations. Some of the projects have given rise to innovations that will have value beyond the specific project, like the home-delivered chemistry lab at Indiana University-Purdue University of Indianapolis. The faculty and staff at the College of St. Catherine know that the New Pathways courses will serve a new kind of student in new ways. With this fundamental change their institution may lose a unique campus experience that the faculty value. Oregon faculty are discovering that distant students have a positive impact on campus students and faculty in a phenomenon they call "inreach." And, because Oregon is delivering degree programs off-campus they are confronting important accreditation issues related to development of "new courses."

COST/BENEFIT ISSUES

The diversity among these projects is striking. Some are statewide efforts, and some serve only a small region. Some are multi-institutional, and some involve a single college or university. Some are well established programs within their institutions, and some are just beginning. One of the most interesting aspects of the differences between these projects is that some use technology to extend the walls of the classroom, some transform the concept of a classroom into a multi-mode learning opportunity, and some establish the multi-mode learning both on campus and in the extended classroom. While they all seek to extend the opportunity to earn degrees to populations that are currently under-served, they do so in quite different ways. We do not yet know that these differences have bearing on a student's ability to learn, to perform in the teaching/learning environment, or to attain his or her educational

goals. Nor do we yet know whether these multi-media learning environments justify their cost to the institutions.

All of these projects deserve scrutiny to determine whether they are worth what they cost. In the next report, we hope to systematically address the issue of the cost/benefit tradeoff for New Pathways courses. Project evaluators are struggling with issues of costs and benefits for several reasons: (1) The costs of these projects are nearly impossible to isolate. (2) Planned outcomes are frequently intangible--revitalizing faculty, enhancing cooperation throughout the system, and so forth. (3) The investments in the telecommunications technologies used in these projects were intended to serve special populations that would otherwise not have access to higher educational resources and are generally quite small, which is counter-intuitive to the usual economic models for infrastructure development. As Gail Schwartz, writing for the U.S. General Accounting Office (1991) points out, when investing in telecommunications infrastructure, one generally considers whether there is a critical mass of users to support the cost of the new services. In these special cases, the "critical mass of users" may or may not be present right now.

Despite these difficulties, when New Pathways projects administrators are asked about cost/benefit issues, they appropriately refer to their institution's mission statement. If the costs extend access to and enable the success of undeserved student populations in ways that fulfill the mission, then the costs are warranted; if the costs fail to address the mission or if they buy more tools than are effectively being used by the students and faculty, then the costs obviously outweigh the benefits.

Without a doubt, there are important benefits. One evaluator points out that the range of benefits typically includes intangibles such as attitude changes, effective communication and cooperation, image building, and other things difficult to appraise. The two programs serving students for whom they had no campus space are most likely realizing a benefit. Other benefits that seem apparent are the following: West Virginia and Oregon have developed systemwide registration processes. In conjunction with the New Pathways project, Oregon and Maine have sponsored discussions which produced new policies. Northern Virginia is realizing new levels of systemwide cooperation and has developed a product that may be useful in other Virginia colleges. Indiana University-Purdue University of Indianapolis has merged computing, communication, and instructional design into one department and realized important productivity gains as a result; and it has overhauled and upgraded courses that will be used for a long time regardless of the success of the New Pathways project. Projects have noted improved instructional methodology, faculty renewal, curriculum enhancement at individual campuses, an increased college leadership in the community and/or the statewide system. Northern Virginia Community College attributes increased state funding directly to activities in the New Pathways type efforts.

There is another reason why direct cost analyses may not be an appropriate method to justify the expense of a project. As each of the project reports has noted, it is practically impossible to calculate the real costs of running a New Pathways course, just as it is practically impossible to calculate the true costs of running traditional courses (counting the proportion of room costs, janitorial services, utilities, parking, library support, and so forth, dedicated to that course). As Steve Ehrmann (1991) has pointed out, one of the best measures of the value of these investments is the improvement in the capabilities of graduates of a particular program. This can be gauged by future employers or graduate school faculty. The length of our evaluation project will not allow us to follow the progress of these students long enough to gather that type of information, but we do hope other researchers will consider doing so.

THE TECHNOLOGIES

There are many technologies in several combinations being used in these projects. Imagine a continuum of complexity in remote classroom technologies: Most simple is a stationary microphone or an unmanned surveillance TV camera broadcasting a normal campus classroom to distant students. The most complex is purely theoretical and difficult to describe, but it would include every technology imaginable. At this extreme, a major characteristic is that the student is less passive and has the opportunity to get what he or she needs on demand. What the student needs might include access to videotaped lectures or demonstrations, real-time communication with the instructor, online library resources including text, and the ability to do key-word or string searches within the text, computer software to facilitate discussion groups among distant students, other kinds of computer communication, and so forth. The technologies in this most complex example would include telephone service, fax service, two-way television, computer networks, and multiple types of networked computer tools. Most of the New Pathways projects are nearer the complexity extreme of this continuum. They are using combinations of technologies to effectively engage the students in varieties of learning activities appropriate to the particular technology. Interviews with students suggest these technologies work. However, at this point, with some projects only beginning, the data are incomplete. During the next year we will be gathering data that will allow us to address the issue of which technologies and services are being most effectively used and whether we can actually attribute changes in teaching and learning to the technology itself.

OTHER NEW PATHWAYS TO A DEGREE ACTIVITIES

In addition to the specific projects reviewed in this report, the Annenberg/CPB's New Pathways to a Degree project has also sponsored four regional meetings, with two more planned during the 1991-92 school year. These were/will be hosted by New Pathways Associates. The Associates are schools that had applied for financial

support but were not given funding due to the limited resources of the New Pathways project, yet were judged to be very promising projects. In order to help support these projects, the Annenberg/CPB Project has provided funding for a representative from each of these institutions to attend an annual New Pathways meeting and has invited staff from these schools to participate in several ongoing computer mediated discussions.

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Schwartz, Gail G. (1991). U.S. Telecommunications policy: demand dictates supply. The GAO Journal, 12, 15-21.

Appendix 1

SURVEY PROTOCOLS FOR INITIAL SITE VISITS

131

Western Cooperative for Educational Telecommunications 11/11/91

Annenberg/CPB Project's "New Pathways to a Degree" Evaluation Questions

Project Director

1. What does your job entail? Can you separate your New Pathways responsibilities from your regular position responsibilities? Describe your role in the New Pathways project.
2. Describe the responsibilities of the key people needed to run project. Can you separate their New Pathways responsibilities from their regular position responsibilities? (Base information to obtain is how the project is organized.)
3. Which organizational units cooperate to support the project?
4. Describe the role of your institution's media/technology support staff for this effort. Where do they report in your organization?
5. Who is involved with or responsible for course design/adaptation?
6. What kind of faculty development is provided to support your efforts?
7. What kinds of faculty incentive factors have you encountered? How have these been addressed?
8. Describe any changes you've seen with regard to your institution's/system's academic/administrative structure as a result of your New Pathways efforts or distance learning efforts?
9. Who makes technology selection/technology mix decisions?
10. How is the effectiveness of the technology selection/mix evaluated?
11. How is student achievement evaluated?
12. Can you give us information with regard to the costs associated with offering a single course? A program of courses? Where do these funds come from? Can the program become completely self-sufficient with regard to costs? What other resources from the institution will be necessary to make the program "self-sufficient"? Please add any other cost information that you can.
13. How is cost factored into the technology selection/mix decisions?
14. How is cost factored into course selection/delivery decisions?
15. What have been the greatest benefits of this project?
16. What have been the greatest problems you've encountered?
17. How are you planning to determine if this project is a success?
18. Can you describe some potential barriers to your success?
19. What are the factors that you believe will keep this project moving forward?
20. How would you change your project to make it even more successful?
21. Do you have anything you'd like to add?

Project Staff

1. Describe your responsibilities in the New Pathways project.

2. Do you work exclusively for the New Pathways project?
3. How has your institution's New Pathways efforts changed your job? Has it changed the way that your office operates?
4. Describe your interaction with campus based and site-based students.
5. Describe your interaction with campus based and site-based faculty.
6. Describe your interaction with campus based and site-based support staff.
7. Describe your interaction with counterparts from other institutions that are part of this project.
8. What seems to affect faculty most?
9. What seems to affect students most?
10. What seems to affect the sites most?
11. What seems to affect the other institutions most?
12. What are the elements of cost for reaching New Pathway's students?
13. What have been the greatest benefits of this project?
14. What have been the greatest problems you've encountered?
15. How are you planning to determine if this project is a success?
16. Can you describe some potential barriers to your project's success?
17. What are the factors that you believe will keep this project moving forward?
18. How would you change your project to make it even more successful?
19. Do you have anything you'd like to add?

Support Services Staff (e.g. financial aid, library, registration, advising, student services)

1. Describe your responsibilities in the New Pathways project.
2. Do you work exclusively for the New Pathways project?
3. How has your institution's New Pathways efforts changed your job? Has it changed the way that your office operates?
4. Describe your interaction with campus based and site-based students.
5. Describe your interaction with campus based and site-based faculty.
6. Describe your interaction with campus based and site-based support staff.
7. Describe your interaction with counterparts from other institutions.
8. What seems to affect faculty most?
9. What seems to affect students most?
10. What seems to affect the sites most?
11. What seems to affect the other institutions most?
12. What are the elements of cost for reaching New Pathway's students?
13. What have been the greatest benefits of this project?
14. What have been the greatest problems you've encountered?
15. In your awareness, what effect has your activities in this New Pathways project had on your institution (institutions)?
16. How do you track the utilization of the student services you provide to New Pathways' students?

17. With regard to student services, how are New Pathways' students different from on-campus students?
18. Do different types of students require different types or different levels of support?
19. Can you describe any potential barriers that might cause this project to not be successful?
20. Are there any specific things you can think of that will help make this project successful?
21. How would you change your project to make it even more successful?
22. Do you have anything you'd like to add?

Faculty

1. What do you teach? How long have you been teaching in this field? With which instructional technologies do you have experience?
2. What made you decide to teach in this project? How did you first learn about the project? Who first asked you to take part in it?
3. What are the incentives to participate in this project? What encourages or discourages your participation?
4. Have you had help with course development?
5. What kinds of technologies do you use in your New Pathways teaching?
6. Were you offered any specific assistance with learning the new skills associated with teaching at a distance and using these technologies? What type of assistance was offered? Did you take advantage of it? Was it valuable?
7. Describe the experiences you had while learning to use the technology? What was the hardest part? What was the easiest part?
8. How long did it take for you to learn how to use these technologies effectively?
9. Was it hard to offer your course using these technologies?
10. In a typical week, what technologies do you and your students use? How frequently?
11. What role did you play in deciding to use these technologies for teaching your classes? Who else played a role in this decision? Describe how these decisions are evaluated? How effectively have each of the various technologies been? Are they all being used the way you had originally envisioned?
12. How would you compare student learning in your New Pathway's course with student learning in traditional courses? In other classes using different technologies you have used?
13. Are there any differences you have noticed between the New Pathways students and those in your more traditional classes?
14. Would you say that using these technologies is an effective way of teaching your class?

15. What achievement measures seem to work best to determine your students' learning outcomes?
16. Does technology provide you with an effective means of teaching your class?
17. Are the technological proficiencies of your students important for success in your class?
18. What are the most critical student support issues and how are they handled? Are they effective?
19. Has using the New Pathways mix of technologies changed your method of teaching? Has it had an effect on how your students approach learning in these classes?
20. Can you describe any pedagogical differences between classes offered to students in a traditional format, other delivery learning formats, and the format associated with the New Pathways project?
21. What do you like best about teaching with technology? What do you like least?
22. What have been the greatest benefits of this project?
23. What have been the greatest problems you've encountered?
24. How are you planning to determine if this New Pathways class is successful?
25. Can you describe reasons why it might not be a success?
26. What factors do you believe might keep this whole New Pathways project moving forward?
26. How would you change the project to make it even more successful?
27. Do you have anything you'd like to add?

Students

1. What class are you taking on the system?
2. What previous experience do you have with non-traditional courses? What experience with traditionally taught college courses?
3. Are you also taking any traditionally taught classes?
4. What technologies have you used before taking this class?
5. What technologies are used in course?
6. How long did it take for you to use this system comfortably and effectively? Were you given any specific assistance?
7. Describe the experiences you had while learning how to use the system? What was the hardest part? What was the easiest part?
8. Why are you taking a New Pathway's course?
9. How far do you live from the main campus? How far from your learning site? Has distance influenced your decision to take the classes?
10. Tell me about course availability--does the distance delivery option increase the range of courses available to you?
11. Does taking this technologically mediated course seem like it takes more or less effort than other courses you have taken?

12. Do you feel as if you are learning more, or more efficiently, using these technological tools?
13. Comparing this course with previous traditionally taught classes you have taken in the same subject area, would you say your involvement with the class material is any different?
14. Comparing this course with previous technologically mediated classes you have taken in the same subject area, would you say your involvement with the class material is any different?
15. How would you describe your learning experiences in this class?
16. Do you think you are likely to earn about the same grade in this class as you would if this class were taught in a more traditional style? Would you learn any more or less?
17. Do you think you are likely to earn about the same grade in this class as you would if this class were taught in a another technological format (one-way television, videotape, etc.)? Would you learn any more or less?
18. How does testing work in this course? Do you think that it is any better or worse than other testing environments you have encountered?
19. How do you get written materials (i.e.,graded tests), books, and the like?
20. Does this course use library resources? If so, how does that work?
21. How does advising work?
22. Do you have access to services such as registration, financial aid services, and other campus based services? If you were on the campus, would you ever use these services?
23. How does taking this class in the way it is being offered affect your communication with your instructor? With other students?
24. What do you like best about taking your class this way? What do you like least?
25. What have been the greatest benefits of taking this class in this way?
26. How did you find out that this class was being offered in this format?
27. How would you suggest we improve the way this course is taught?
28. Is there anything else you would like to add?

Site Coordinators/Managers

1. Describe your job--and your role in the New Pathways project.
2. How have these nontraditional outreach efforts effected your job responsibilities.
3. In general terms, describe the hours of operation, number of students served, number of courses offered, types of student services provided.
4. Describe your interaction with students on the campus, at this and other sites, and other institutions involved with this project.
5. Describe your interaction with faculty on the campus, at this and other sites, and other institutions involved with this project.

6. Describe your interaction with staff on the campus, at this and other sites, and other institutions involved with this project.
7. What seems to affect faculty most?
8. What seems to affect students most?
9. What seems to affect the sites most?
10. What seems to affect the other institutions most?
11. What are the cost elements in delivering courses to distant students? How do you evaluate whether it is worth it?
12. What have been the greatest benefits of this project.
13. What have been the greatest problems you've encountered?
14. What factors contribute to this project's success?
15. Can you describe some reasons why this project may not succeed?
16. How would you change this project to make it even more successful?
17. Do you have anything you'd like to add?

Administration (e.g. Deans, Department Heads)
[NOTE: PULL OUT SOME OF THE "CENTRAL ADMINISTRATION" QUESTIONS IF YOU JUDGE IT APPROPRIATE FOR THE PARTICULAR INTERVIEWEE]

1. Describe the degree of involvement of your unit with the New Pathways effort.
2. How are your faculty identified to teach on the system?
3. What type of faculty incentive factors have come up in this project? How have they been handled? Is the current situation satisfactory both to the faculty and to you?
4. Are faculty performance appraisal factors handled differently when the New Pathways issues are involved?
5. Do your faculty get assistance with course development?
6. Do they get help with media/instructional delivery activities?
7. Who makes your technology selection/mix decisions? How are these decisions evaluated?
8. How would you compare student learning in the New Pathways' courses with student learning in traditional courses?
9. What do you think is the best way to measure students' achievements in these types of courses?
10. Can you give us information with regard to the costs associated with offering a single New Pathways' course? A program of courses? Where do these funds come from? Can the program become completely self-sufficient with regard to costs? What other resources from the institution will be necessary to make the program "self-sufficient"? Please add any other cost information that you can.
11. How is cost factored into course selection decisions for distant delivery?
12. How do you determine whether the cost of offering these courses is worth the benefits?

13. What have been the greatest benefits of this project?
14. What have been the greatest problems you've encountered?
15. How are you planning to determine if this project is a success?
16. Can you describe some potential barriers to your success?
17. What are some of the factors you believe might keep this project moving forward?
18. How would you change your project to make it even more successful?
19. Do you have anything you'd like to add?

Remote Site Administration (e.g. Deans, Department Heads)
[NOTE: PULL OUT SOME OF THE "CENTRAL ADMINISTRATION" QUESTIONS IF YOU JUDGE IT APPROPRIATE FOR THE PARTICULAR INTERVIEWEE]

1. Describe the degree of involvement of your unit with the New Pathways effort.
2. How would you compare student learning in the New Pathways' courses with student learning in traditional courses?
3. What do you think is the best way to measure students' achievements in these types of courses?
4. Can you give us information with regard to the costs associated with offering a single New Pathways' course? A program of courses? Where do these funds come from? Can the program become completely self-sufficient with regard to costs? What other resources from the institution will be necessary to make the program "self-sufficient"? Please add any other cost information that you can.
5. How is cost factored into course selection decisions for distant delivery?
6. How do you determine whether the cost of offering these courses is worth the benefits?
7. What have been the greatest benefits of this project?
8. What have been the greatest problems you've encountered?
9. How are you planning to determine if this project is a success?
10. Can you describe some potential barriers to your success?
11. What are some of the factors you believe might keep this project moving forward?
12. How would you change your project to make it even more successful?
13. Do you have anything you'd like to add?

Central Administration (Provost)

1. Describe the degree of your involvement with the New Pathways effort.
   (If very involved:
   1a. How is cost factored into technology selection/mix decisions?
   1b. How is cost factored into course selection/delivery decisions?)

139

2. Describe any changes you've seen with regard to your institution's academic/administrative structure as a result of your New Pathways efforts (e.g., internal resource allocation, institutional mission).
3. What have been the greatest benefits of this project?
4. What have been the greatest problems you've encountered?
5. How are you planning to determine if this project is a success?
6. Can you describe some potential barriers to that success?
7. What is the role of information technology in the life of your institution? Do you see this role changing?
8. What does this New Pathways project mean to your institution?
9. What might you learn from this project that will be of value in making future institutional decisions?
10. Do you think this information would be important to your peers at other institutions?
11. How do you determine the cost/benefit trade off of projects like these?
12. In general, what is the strategic role of informational technologies in the instructional process?
13. Do you see any relationship between new instructional technologies and the current issues in higher education (e.g., access, accountability)?
14. Do you have anything you'd like to add?

Appendix 2

ENVIRONMENTAL SCAN INSTRUMENT

The Annenberg/CPB Project

New Pathways to a Degree Evaluation

Environmental Scan of Data Sources/Instrumentat

Western Cooperative for Educational Telecommunciations
Western Interstate Commission for Higher Education
P.O. Drawer P
Boulder, CO 80301-9752

Please return this completed form no later than August 9. 1991

Address your envelope "Attn: Oliver Sundby"

Directions for completing the *New Pathways to a Degree* Environmental Scan instrument:

The "New Pathways to a Degree" environmental scan document has been developed to provide all funded with a checklist of information sources. The full list has been compiled from several sources, including the Annenberg/CPB Project "New Pathways" RFP, from the Strategic Planning group's brainstorming session April, 1991 Alexandria "New Pathways" meeting, and from the Western Cooperative's "New Pathways" e plan. An item's inclusion on this list does not imply that it is an essential data point, per se -- rather, it repr information which may potentially be used by individual New Pathways projects.

The intent of this initial scanning instrument is:

- to determine the type of information being collected by the funded "New Pathways" projects;
- to determine categories of information which are common across all projects;
- to see if certain categories of information are seen to be more important that others for evaluative pur
- to determine if data collection instruments being used by projects can be shared across projects.

This instrument should be completed by each "New Pathways" project director with assistance from memb institution's New Pathways evaluation team. It should take approximately one hour to complete the form; circle your response per category. The completed form should be returned no later than August 9, 1991 to

Western Cooperative for Educational Telecommunications
Attn: Oliver Sundby
Western Interstate Commission for Higher Education.
P.O. Drawer P
Boulder, CO 80301-9752

We appreciate your assistance with and participation in this collective evaluation effort.

Date Completed: _____ Completed by: _____

Institution: _____

Project/Evaluation Team Members: Name	Site/Address	Responsibilities	Phone	Fax
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				

(Please copy and add additional names as needed)

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports?	Is the form used to collect this info available from your office, if needed?	Please rank your perception of relative importance of this type information to evaluate your p (5 = most important, 1 = least)
I. INSTITUTIONAL CHARACTERISTICS These data describe the historical and/or current status of an institution. They include, but are not limited to:					
Annual report summaries	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Mission statement	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Organizational charts	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Governance structure	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
System descriptions	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Institutional histories	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Telecom needs assessment	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Telecom implementation plans	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Telecom project evaluations	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
"Outreach" needs assessments	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
"Outreach" implementation plans	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
"Outreach" evaluations	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Delivery site profiles/descrip.	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Academic programs delivered	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Technology inventories	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Student support service inventory	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Faculty support service inventory	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Library resource inventory	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Accreditation (by program)	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Profile of region served	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Profile of population served	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Degree(s) provided	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Program(s) provided	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Course(s) provided	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports/summaries?	Is the form used to collect this info available from you, if needed?	Please rank your pe relative importance information to eval (5 = most importa
II. FACULTY CHARACTER-ISTICS: These data describe the teaching staff associated with the institution. They include, but are not limited to:					
Age	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Gender	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Professional preparation	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Rank	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Tenure status	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Full / Part-time status	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Technology proficiency	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Attitude toward technology for teaching	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Teaching style assessment	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Teaching evaluations	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
III. STUDENT CHARACTERIS-TICS: These data describe the student population being served by the institution. They include but are not limited to:					
Age	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Gender	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Declared major	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Full / Part time status	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Residential distance from main campus	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
# of students served	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Target Audience(s) served	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Student demog. projections	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Student enrollment projections	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Technology proficiency	Y N	Y N NA	Y N With permission	Y N NA	5 4 3
Attitude toward technology for direct instruction	Y N	Y N NA	Y N With permission	Y N NA	5 4 3

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports?	Is the form used to collect this info available from your office, if needed?	Please rank your perc relative importance o information to evalua (5 = most important,
Student characteristics, continued					
Attitude toward technology to support/enrich instruction	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
IV. STUDENT PSYCHOGRAPHICS: These data are used to measure and describe variables which affect student learning capabilities and outcomes. They include, but are not limited to:					
Self-efficacy	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Motivation	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Locus of control	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Learning styles	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Learning strategies	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
V. STUDENT ACHIEVEMENT: These data provide evidence of student learning, performance improvement and attitude toward instruction. They include, but are not limited to:					
Assignment/test scores	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course grades	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Grade Point Average	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Assignment completion rates	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course completion	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course satisfaction	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Competency/proficiency testing	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Problem-solving assessment	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Creative thinking assessment	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Barriers to student success	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports?	Is the form used to collect this info available from your office, if needed?	Please rank your perceptio relative importance of this information to evaluate yo (5 = most important, 1 = l
Student achievement, continued					
Technology preferences	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Learning incentives	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
VI. COURSE DEVELOPMENT: These data describe variables that influence the selection, development and design of courses and course materials. They include, but are not limited to:					
Course content outlines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Syllabus development guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course selection guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course evaluation guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Media/technology selection guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Instructional design guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Timelines for course development	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Faculty incentives for new course development	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course content analysis	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Summaries of courses developed for technology-based delivery	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Summaries of departments being affected by tech-based delivery	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Student guides	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Program guides	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Course Revision Guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports?	Is the form used to collect this info available from your office, if needed?	Please rank your perceptior relative importance of this t information to evaluate you (5 = most important, 1 = lea
VII. FACULTY DEVELOPMENT: This information is used for describing procedures and methods used for evaluating faculty performance. It includes, but is not limited to:					
Recruitment guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Selection guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Evaluation guidelines	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Technology proficiency assessment	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Teaching incentives	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Course development incentives	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Faculty use of technology for teaching	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Faculty participation in technology based teaching efforts	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
# of faculty involved in distance learning efforts	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Retention rate of faculty who teach distance learning claases	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
VIII. SUPPORT SERVICES This information describes the variety and number of resources available to support student learning/faculty teaching. It includes, but is not limited to:					
Technology inventory	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Media services for faculty	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Media services for students	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
E-Mail for faculty	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports?	Is the form used to collect this info available from your office, if needed?	Please rank your perce relative importance of information to evaluat (5 = most important, 1
Support Services, continued					
E-Mail for students	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Voice-mail for faculty/staff	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Voice mail for students	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
"800" numbers	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
"On line" registration	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
"On- line" financial aid advising	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
"On line" academic advising	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Off campus site facilitators	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Site facilitator training	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Library resource inventory	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
"On-line" library services	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Book/supply procurement	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
"On line" book purchasing	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
IX. TECHNOLOGY MIX: This information describes the variety of media/technology being used to deliver instruction and services andto support administrative operations. It also describes effective combinations of technology for specific applications. It includes but is not limited to:					
General technology inventories	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Inventories of technolgies used per type / level of course	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2
Ranking of student technology preferences per course	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2

Type of Information	Is this information now collected at your institution: Routinely	For your New Pathways eval?	Can this info be reported in the New Pathways eval reports?	Is the form used to collect this info available from your office, if needed?	Please rank your perceptio relative importance of this information to evaluate yo (5 = most important, 1 = le
Technology Mix, continued					
Ranking of technology effectiveness per course by students	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Ranking of technology preferences by faculty per course	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Ranking of technology effectiveness per course by faculty	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Cost of delivering courses	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Cost of delivering technology supported courses	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Cost of delivering technology-based courses	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Satellites used	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Computer networks used	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Bulletin boards used	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Pre/post course attitude assessment of students	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Pre/post course attitude assessment of faculty	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1
Other: _____	Y N	Y N NA	Y N With permission	Y N NA	5 4 3 2 1

What other types of information are you collecting or planning to collect as your evaluations progress?

As the New Pathways evaluations progress, it is likely that you will be collecting information describing techno efits, organizational structures, funding structures and policy issues. We are interested in learning about these a varieties of information you intend to collect as your project evaluation gets underway. Please use the space be vide a brief description of the data/information sources you plan to use which have not been listed in this docu to attach any written descriptions of your evaluation plan which may be available. Please remember that the g exercise is to ascertain the varieties of data/information sources being collected in order for the Western Coope maximize evaluative comparability across projects. Your assistance in this effort is very much appreciated.